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COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 26] September, 1956 [No. 9

DISEASES CAUSED BY BACTERIA AND FUNGI

DEUBLER, M. J. & COLE, E. J. (1956). **Studies on micrococcal mastitis in an individual herd.**—*Vet. Med.* **51,** 111-113. **2766**

In a 12-month bacteriological survey of quarter-milk samples from a herd of 45 Ayrshire cows kept under ideal conditions, no relationship could be established between the pathogenicity of staphylococci isolated, as evidenced by the presence of clinical mastitis, and tests for haemolysis, coagulase, or phosphatase, agglutination tests with specific antisera prepared against known pathogenic strains, or pathogenicity tests in mice. Antibiotic treatment of normal quarters yielding haemolytic staphylococci temporarily suspended the excretion of the organisms but did not reduce the total incidence of clinical mastitis in the herd.—M. B. HAWKSLEY.

BARNES, L. E. (1956). **Oxytetracycline in bovine mastitis. II. Milk levels following local and parenteral administration.**—*Amer. J. vet. Res.* **17,** 18-23. **2767**

Following a single 400-mg. intramammary infusion of oxytetracycline, detectable amounts of the drug were present in foremilk samples from healthy cows for an average of 37·3 hours. The amounts attained and the length of time that they could be detected were inversely correlated with the volume milk production of the quarter. After repeated infusions of 400 and 800 mg., no consistent cumulative effect occurred, but concentrations sufficient to be inhibitory to most of the common mastitis organisms were obtained. Marked variations in the oxytetracycline concentration were found in different quarters of the same cow and in different cows of the same production group. No detectable amounts of oxytetracycline were found in the milk following intramuscular or intraveneous injection of 1 g. of oxytetracycline, nor in the milk from neighbouring untreated quarters.

—A. ACKROYD.

I. PETRILLO, R. L. (1956). Prospettive nuove nella chemioterapia della mastite bovina da *Streptococcus agalactiae*. [**A new chemotherapeutic agent in the treatment of mastitis in cattle caused by** *Str. agalactiae*.]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 576-578. [English and French summaries.] **2768**

II. NAI, D. D. & PETRILLO, R. L. (1956). Ricerche sulla terapia della mastite bovina da *Streptococcus agalactiae*. [**Studies on the treatment of mastitis in cattle caused by** *Str. agalactiae*.]—*Ibid.* 581-585. Discussion: pp. 585-586. [English and French summaries.] **2769**

I. Intramammary injection of 1 : 6-4 chlorophenylguanidohexane in an oily base cured 74–86% of quarters affected with *Str. agalactiae* mastitis but with no obvious clinical lesions, and 45–58% of the quarters clinically affected.

II. More than 1,000 quarters with *Str. agalactiae* infection were treated with penicillin in oil. Complete recovery resulted in 89% of cases with no clinical changes, and in 58% of the clinically affected cases. Increased dosage increased the number of cures, but 7% of the quarters were absolutely refractory to the local introduction of penicillin, regardless of dosage.—I. W. JENNINGS.

KÖHLER, W. (1955). Antistreptolysin-Normaltiter bei Haustieren. [**The normal antistreptolysin titre of domestic animals.**]—*Zbl. Bakt. I. (Orig.)* **164,** 598-601. [English, French and Russian summaries.] **2770**

Average normal titres of anti-streptolysin in the blood of horses, cattle, sheep and dogs were respectively, 85, 111, 118 and 130 (expressed as anti-streptolysin units.)—R.M.

MORNET, P. (1955). La tuberculose animale dans les territoires d'outre-mer. Mesures prophylactiques envisagées. [**TB. in domestic animals in the French overseas territor-**

ies.]—*Bull. Synd. nat. Vét.* **34,** No. 4. pp. 20-38. **2771**

The incidence of bovine TB. in each of the territories is given. It is generally less than 1% and often below 0·1%, although in the Sudan territory it is 5%. In Madagascar the infection, introduced in the south, is spreading north, where the incidence reaches 60–80%, although in the south it is now falling. A number of general proposals for dealing with the problem in all regions are given, with detailed measures for the three worst-affected areas.—A. SEAMAN.

SEELEMAN, M. & RACKOW, H. -G. (1955). Versuche mit verschiedenen BCG.-und Säugertuberkulinen und Tuberkulinierungsmethoden an schutzgeimpften und nichtgeimpften Rindern. **[Experiments using various B.C.G. and mammalian types of tuberculin and different tuberculin tests on cattle vaccinated and unvaccinated against TB.]**—*Kieler Milchwirtschaft. ForschBer.* **7,** 151-165. [English and French summaries.] **2772**

A detailed evaluation of the test methods generally proposed for differentiating vaccination allergy from superinfection allergy where cattle are being vaccinated against TB. with either the B.C.G. or the "P" (Vallée passage) strain. (1) In the i/d test with three mammalian types of tuberculin a pure vaccination reaction is denoted by a skin swelling of 3–6 mm., but more pronounced swellings may occur and are not necessarily due to superinfection. (2) The s/c tuberculin test is much less sensitive than the i/d test and yields a positive reaction in superinfected animals only in the presence of an active lesion of TB. (3) A comparison of (presumably i/d) skin tests, using mammalian and B.C.G. types of tuberculin respectively, revealed that: (a) the majority of vaccinated animals reacted more strongly to mammalian type than to B.C.G. tuberculin; (b) with both tests there was a certain measure of agreement with P.M. findings, (*i.e.*, in 54% of vaccinated and in 92% of unvaccinated, naturally infected animals), but further observations on vaccinated animals which had been kept in quarantine limited the significance of these findings. Subject to the above limitations, these three methods were regarded as helpful means—in the hands of experienced clinicians—of diagnosing the more dangerous forms of TB.—G. P. MARSHALL.

SCHAETZ, F. (1956). Die intrakutane Tuberkulinprobe und ihre Zuverlässigkeit. (Übersichtsreferat und Literaturauswahl). **[Reliability of the intradermal tuberculin test; a review.]**—*Rindertuberkulose.* **5,** 1-38. **2773**

A comprehensive review of the literature relating to the various known aspects of tuberculin testing. Principles, technique, and value of the i/d test are discussed as are also possible sources of error due to non-specific reactions and to fraudulent interference with normal reactions. Attention is drawn to an apparent increase in the number of non-specific reactions in recent years, which is probably due to actual reduction in the number of tuberculous animals. A further improvement of the tuberculin test would not necessarily be an advantage, as a more sensitive reaction would also increase the risk of false-positive reactions.—F. K. LEEB.

TUNKL, B., MILUNOVIĆ, M. & AUDI, S. (1956). Značenje svježih reaktivnih promjena na limfnim čvorovima goveda, koja su pozitivno reagirala na tuberkulin. **[Significance of lesions in lymph nodes of cattle reacting to tuberculin.]**—*Vet. Arhiv.* **26,** 39-47. [In Croat. English and German summaries.] **2774**

Accuracy of the tuberculin test was studied P.M. in 44 bovine reactors, using lymph nodes which, although enlarged, hyperaemic and haemorrhagic, had no macroscopic lesions. *Mycobacterium tuberculosis* was demonstrated by g. pig inoculation in lymph node material from 20 of 24 reactors with typical tuberculous lesions in other organs and from 16 of 20 without lesions in other organs.—E.G.

KUTLEŠA, I. & MARIĆ, I. (1955). Pitanje nespecifičnih tuberkulinskih reakcija kod goveda s posegnim osvrtom na t. zv. dopunske probe. **[Doubtful tuberculin reactions in cattle and supplementary tests.]** — *Veterinaria, Sarajevo.* **4,** 442-450. [In Croat. English summary.] **2775**

From results obtained with supplementary tuberculin tests in doubtful reactors the authors concluded that these tests are of limited value when both bovine and avian tuberculins are used simultaneously, and quite misleading if bovine tuberculin alone is used. —E.G.

MESSIERI, A. (1956). La possibile riattivazione delle lesioni tubercolari dei bovini curati coll'idrazide isonicotinica. **[The possibility of reactivation of TB. lesions in cattle**

cured by *iso*-nicotinic acid hydrazide.]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 536-539. [French and German summaries.] **2776**

A cow treated with *iso*-nicotinic acid hydrazide for chronic tuberculous mastitis was apparently cured, but 7 weeks later the infection started up again. A second course of treatment was followed by a similar apparent cure, and a similar resurgence of infection within about 2 months.—I. W. Jennings.

I. Thurston, J. R., Rheins, M. & Huziwara, T. (1956). **Serological investigations of mycobacterial antigens. I. The specificities of aqueous and saline extracts of BCG, *Mycobacterium phlei*, and H37Rv.** — *Amer. Rev. Tuberc.* **73,** 563-570. [French and Spanish summaries. English summary modified.] **2777**

II. Thurston, J. R. & Rheins, M. (1956). **Serologic investigations of mycobacterial antigens. II. Specificities of antigens obtained by successive aqueous extraction of BCG and *Mycobacterium phlei*.**—*Ibid.* 571-575. [French and Spanish summaries. English summary modified.] **2778**

I. Erythrocyte-sensitizing antigens can be obtained readily from masses of non-defatted mycobacteria by extraction with water or saline at 37°C. These antigens exhibit specificities more limited than those demonstrated with Old Tuberculin.

II. Specific erythrocyte-sensitizing antigens were obtained by repeated water extraction of B.C.G. cells. The arrangement or solubility of these antigens in B.C.G. apparently differs from those in *M. phlei*. The technique of repeated extraction provides a method of investigating various mycobacterial antigen-antibody systems.

Lominski, I., Cameron, J. & Roberts, G. B. S. (1956). **Experimental Johne's disease in mice.**—*J. Path. Bact.* **71,** 211-222. [Authors' summary modified.] **2779**

There was bacteriological evidence of infection in 119 mice inoculated i/v or i/p with 8 strains of *Mycobacterium johnei*. Intestinal lesions were indistinguishable from those found in infected cattle. Infected mice excreted increasing numbers of *M. johnei* in their faeces; masses of acid- and alcohol-fast bacilli were seen in the intestinal mucosa, liver and spleen. Successful mouse-to-mouse passage was effected. The disease in mice had the unusually long incubation period of several months and ran a protracted, almost asymptomatic, course. About 20% of the mice died with no apparent cause of death other than extensive lesions of Johne's disease.

Godglück, G. (1954). Über die Wirkungsweise von Rotlaufbakterien in der Schweinehaut. **[Behaviour of *Erysipelothrix rhusiopathiae* in the skin of pigs.]**—*Mh. VetMed.* **9,** 227-229. **2780**

When infection does not follow the introduction of *E. rhusiopathiae* into the skin of pigs by scarification, the organisms gradually die off. According to G., phagocytosis does not take place under these conditions. [See also *V.B.* **25,** 1883.]—R.M.

I. Rosati, T. (1956). Azione del cortisone sull'infezione sperimentale da ceppi di *Erysipelothrix rhusiopathiae* avirulenti e debolmente virulenti. **[The action of cortisone in experimental infection with avirulent or attenuated strains of *E. rhusiopathiae*.]**—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 546-550. [English and German summaries.] **2781**

II. Duranti, G. & Patera, E. (1956). Azione del cortisone in prove di infezione sperimentale dell'hamster e della cavia con *Erysipelothrix rhusiopathiae*. **[The action of cortisone in experimental *E. rhusiopathiae* infection of hamsters and g. pigs.]** — *Ibid.* 550-554. [English and German summaries.] **2782**

I. Mice injected with avirulent or weakly virulent strains of *E. rhusiopathiae* succumbed to the infection when given a 5-day course of cortisone injections, starting the day before infection. The increase in virulence was in direct relationship to the quantity of cortisone given.

II. Similar experiments on hamsters yielded identical results, but g. pigs were insusceptible to infection with the strains used, whether given cortisone or not.

—I. W. Jennings.

Brill, J. & Szynkiewicz, Z. (1955). Pożywka płynna wybiórczo-namnażająca do hodowli włoskowców różycy świń. **[A selective medium for *Erysipelothrix rhusiopathiae*.]**—*Roczn. Nauk. rol.* Ser. E. **67,** 255-265. [In Polish. English and Russian summaries.] **2783**

The authors used a liquid selective medium consisting of horse meat extract with 1% peptone, 0·5% NaCl and 1% glucose. After sterilization, to each 100 ml. is added 0·5 ml. of 0·1% crystal or gentian violet followed by 2 ml. of sodium azide and 1–2 ml. of

egg yolk diluted with 400 ml. distilled water. The final pH of the medium is 7·2. A solid medium was preferred for the examination of decomposing carcasses and tonsils of suspected carriers.—M. GITTER.

JANOWSKI, H. (1955). **Badania nad podniesieniem wartości uodporniających niezjadliwej kultury różycowej według Stauba. I. Wpływ zwiększonej dawki (5 ml) szczepionki na odporność. II. Porównanie własności uodporniających szczepu Stauba używanego do produkcji z własnościami uodporniającymi szczepu zliofilizowanego. [Improvement of the avirulent swine erysipelas vaccine described by Staub. I. Effect of dosage on duration of immunity. II. Properties of the strain.]** — *Roczn. Nauk. rol.* Ser. E. **67,** 233-243 & 245-253. [In Polish. English and Russian summaries.] **2784**

I. The immunity induced by a 5-ml. dose of avirulent culture lasted 5 months whereas with a 3-ml. dose it lasted only 2–2·5 months. On one farm 10 weeks after vaccination 40% of pigs inoculated with 5-ml. dose proved immune as against 10% of pigs given 3 ml.

II. J. compared the avirulent strain used for production of this vaccine (strain G) with a strain stored in the freeze-dried state since 1951 (strain L). The former resembled morphologically the rough form of the organism and the latter the smooth form. Serologically strain L gave a higher titre in 64% of cases than did strain G and an equal titre in 36%. Antigenically strain L had a better protective action in mice and pigs. He therefore recommended the use of strain L for the production of avirulent vaccine.

—M. GITTER.

RYU, E. (1955). **Three cases of *Listeria* infection in swine.** — *Mem. Coll. Agric. Taiwan Univ.* **4,** 23-32. [In English.] **2785**

Erysipelothrix (Listeria) monocytogenes was isolated from lungs, spleen and kidneys of a 2-month-old pig with pleuro-pneumonia, from a farm where 13 of 87 pigs had died, and together with *Pasteurella* and *E. rhusiopathiae* from the lungs but not from liver, spleen and kidneys of another pig about 6 months old with pneumonia and brain abscess, which had displayed nervous symptoms ("circling") during life. A third strain was isolated from spleen and kidneys of a piglet, 10 weeks old, without pulmonary involvement. Serologically the 3 strains belonged to 2 types. All were pathogenic for mice, g. pigs and rabbits. Pigs, when injected i/v, died from acute septicaemia within 36–48 hours, but remained healthy when injected by the s/c and i/p routes.—E.G.

OLSON, C. & SEGRE, D. (1956). **An agent enhancing listeriosis of sheep.**—*Amer. J. vet. Res.* **17,** 235-242. **2786**

Defibrinated blood from a lamb with *L. monocytogenes* infection was injected i/v into 4 lambs and caused a rise in temp. (105·8°–106°F.) in 3 of them. Blood was drawn from one of these during fever and passaged serially in chick embryos. Eggs were inoculated with material from the sixth yolk sac passage and, after incubation, the embryos were harvested and stored at – 35°C. This material, ground and suspended in physiological saline soln., was administered intravenously or intranasally, simultaneously with *L. monocytogenes,* to susceptible sheep. Listeriosis ensued and it is argued that a substance contained in the chick embryo material and termed the "listeriosis-enhancing agent" increased the susceptibility of the sheep or the virulence of the organism.—T.E.G.R.

SEGRE, D., OLSON, C., MARSH, C. L. & BLORE, I. C .(1956). **Attempts to influence listeriosis in chickens using antimetabolites.**—*Amer. J. vet. Res.* **17,** 299-302. [Authors' summary copied *verbatim.*] **2787**

Several intermediates and inhibitors of the tricarboxylic acid cycle failed to influence the course of experimental listeriosis in young chickens.

SMITH, H. WILLIAMS & CRABB, W. E. (1956). **The sensitivity to chemotherapeutic agents of a further series of strains of *Bacterium coli* from cases of white scours: the relationship between sensitivity tests and response to treatment.** — *Vet. Rec.* **68,** 274-277. [Author's summary modified.] **2788**

Of 58 strains of *Bact. coli* isolated from calves with white scours in 1955, 15 were resistant *in vitro* to sulphadimidine, 11 to streptomycin and 2 to chlortetracycline and oxytetracycline; all were sensitive to chloramphenicol. The proportion of resistant strains was higher than in a similar survey conducted in 1950–53. The significance of this is discussed. Further studies revealed that resistant strains of *Bact. coli* were commonly associated with white scours on some farms but not on others. For several years it had been the practice, on the only two farms where chlortetracycline- and oxytetracycline-resistant

strains were found, to feed a chlortetracycline supplement to calves for the first month of life.

The alteration of the *Bact. coli* population of the alimentary tract of scouring calves from streptomycin sensitive to resistant as a result of streptomycin treatment, traced by sensitivity testing and phage typing, indicated that the process was one of selection and not mutation.

A rapid plate method of determining the sensitivity of *Bact. coli* in the faeces of scouring calves was developed. A close correlation existed between the results of these tests and clinical response to treatment.

DĄBROWSKI, T. & KOŚLAK, A. (1956). Spostrzeżenia nad paratyfusowym ronieniem klaczy. [*Salmonella abortus-equi* **infection.**] — *Méd. vét., Varsovie.* **12,** 206-209. [In Polish. English and Russian summaries.] **2789**

After examining 1,073 samples of mares' sera and 51 aborted equine foetuses the authors concluded that the diagnosis of *S. abortus-equi* abortion in mares should be based mainly on bacteriological examination of the foetuses and foetal membranes. In order to detect carriers the agglutination test should be carried out within 3 weeks of abortion. In studs where this type of abortion occurs the titre 1 : 400 can be regarded as positive, although some aborting mares had a lower titre. The complement-fixation test carried out simultaneously with the agglutination test appeared to be specific and in the authors' opinion should always be used.—M. GITTER.

KARELLOVÁ, J. (1956). O sérotypoch kmeňov *Salmonella cholerae suis* izolovaných na Slovensku. **[Serotypes of** *S. cholerae-suis* **strains isolated in Slovakia.]**—*Vet. Čas.* **5,** 106-110. [In Slovak. German and Russian summaries.] **2790**

Of 66 strains of *S. cholerae-suis* isolated from pigs and a heifer in Slovakia, 50 were of the *kunzendorf* variety, 3 of the monophasic type of the first phase and 13 of the diphasic H_2S-positive type.—E.G.

HASHIZUME, K. & MATSUMOTO, H. (1955). **Incidence of salmonella in apparently healthy dogs near Osaka.** — *Bull. Univ. Osaka Prefect.* Ser. B. **5,** 95-97. [In English.] **2791**

Salmonella was isolated from the faeces of 8 and the mesenteric lymph nodes of 57 out of 306 apparently healthy stray dogs in the Osaka district of Japan. The only species present in faeces was *S. typhi-murium.* This was also the commonest species isolated from the mesenteric lymph nodes, *S. potsdam* and *S. thompson* being the next commonest. The incidence of infection appeared to be higher in autumn that in spring.—R.M.

INNES, J. R. M., WILSON, C. & ROSS, M. A. (1956). **Epizootic** *Salmonella enteritidis* **infection causing septic pulmonary phlebothrombosis in hamsters.**—*J. infect. Dis.* **98,** 133-141. [Authors' summary slightly modified.] **2792**

An outbreak of *S. enteritidis* infection, with acute course and death, occurred in hamsters. Necrotizing foci were found in the liver and spleen, but the outstanding lesion was a septic partially occluding phlebothrombosis in the lungs, not necessarily accompanied by broncho-pneumonia. Enteric signs and lesions did not dominate the picture. The disease was reproduced experimentally in hamsters (and mice) by intraperitoneal, or oral, infection by the *S. enteritidis* cultured and the organism again recovered by culture.

GRYCZ, E. (1955). Ocena wartości odczynu zlepnego metodą płytową z surowicą przy pulorozie. **[Evaluation of the rapid serum plate test in** *Salmonella pullorum* **infection.]** —*Roczn. Nauk. rol.* Ser. E. **67,** 267-276. [In Polish. English and Russian summaries.] **2793**

Twelve diagnostic laboratories using the same technique and the same antigen examined 55,948 blood samples for *S. pullorum.* The tube and serum plate agglutination tests were carried out in every case and identical results were obtained in 98·15% of samples. G. considered that these results would fully justify the replacement of the standard test by a cheaper and simpler plate test.—M. GITTER.

GARREN, H. W. & BARBER, C. W. (1955). **Endocrine and lymphatic gland changes occurring in young chickens with fowl typhoid.**—*Poult. Sci.* **34,** 1250-1258. **2794**

A comparative gross and histological study was made of the pituitary, thyroid, and adrenal glands, and bursae of Fabricius of young birds affected with fowl typhoid and their controls. It was not determined whether the lesions observed were a protective response or the result of stress.—F. T. W. JORDAN.

MÖLLER, A. (1955). Breslau- Gruppenerkrankung durch infizierte Hühnereier. [*Salmonella typhi-murium* **infection in human beings**

caused by infected hens' eggs.]—*Zbl. Bakt. I. (Orig.)* **164,** 535-539. [English, French and Russian summaries.] **2795**

An outbreak of food poisoning due to *S. typhi-murium* was traced to a salad containing eggs. The organism was identified in cloacal smears, and was isolated from eggs, of one of a small flock of hens which supplied the eggs for the salad.—R.M.

GÜNTHER, O. & LIPP, R. (1956). Probleme des polyvalenten Salmonella-Serums. **[Use of polyvalent salmonella sera.]**—*Mh. Tierheilk.* **8,** 9-20. **2796**

The authors discussed the biological principles of the production and testing of polyvalent salmonella sera, and described the successful production and testing on an experimental scale. A polyvalent serum was produced which appeared to be capable of agglutinating all the 300 known types of *Salmonella*.—F. K. LEEB.

ORLOV, E. S. [Edited by:] (1956). **[Symposium of brucellosis of farm animals.]**—*Veterinariya, Moscow.* **33,** No. 2. pp. 35-39. [In Russian.] **2797**

A collection of fairly detailed abstracts of 17 papers on brucellosis. The main topic is diagnosis :— the opsono-phagocytic reaction in cattle and sheep; the ophthalmic (conjunctival) test; examination of sheep and goats' milk by the ring test; the blood agglutination test and modification of it suitable for horses and sheep; diagnosis of brucellosis in pigs. There are also papers on the progress of eradication in 3 districts.—R.M.

FRACASSO, B. (1956). Prima indagine sulla brucellosi in Friuli e piano di risanamento. **[A preliminary survey of brucellosis of cattle in Friuli, Italy: plan for the eradication of the disease.]**—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 669-673. Discussion: pp. 673-674. [English and French summaries.] **2798**

Ring tests were carried out on 21,311 herd samples of milk from plains cattle and 11,620 herd samples from mountain cattle. Further blood agglutination tests were done on individual cattle in those herds with positive ring tests. In only 48·85% of cases in the plains cattle was there agreement with the ring test. The percentage was higher in the case of the mountain cattle (64·66%).

—I. W. JENNINGS.

MAESTRONE, G. (1956). Identificazione delle bovine eliminatrici di *Brucella* nelle Stalle-Pilota della provincia di Milano. **[The identification of cows excreting *Brucella*.]**—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 674-677. [English and French summaries.] **2799**

This is an account of an investigation into the presence of *Brucella* in the milk of 1,696 cows in the province of Milan. 65% of the animals had blood agglutinins, 6·2% had agglutinins in the milk. Of this latter group, 73·5% shed *Brucella* in the milk.

—I. W. JENNINGS.

BOD'A, K., ROŠKO, L. & TOMÁŠ, J. (1955). Leukocytárna reakcia a zmeny bielkovin krvného sera pri immunobiologickom procese po podaní vakciny B19 u krav. **[The white blood picture and serum protein content in cows following immunization with *Brucella abortus* Strain 19.]**—*Sborn. čes. Akad, zemědělsk. Věd., Živoč. Výr.* **28,** 901-912. [In Slovak. English, German and Russian summaries.] **2800**

Post-vaccination reaction of leucocytes and serum proteins was studied for 59 days in 20 cows injected with Strain 19. Reaction of leucocytes was most marked on the seventh day before the maximum agglutination titre was reached. There was an increase in the number of lymphocytes and eosinophile leucocytes and the number of neutrophiles appeared relatively reduced. This ratio gradually reverted to normal. The highest relative increase in γ-globulins was during the second and third week, when the agglutination titre was at its peak.—E.G.

OMAROV, K. S. (1954). **[Strain 10/5 brucella vaccine and its use under experimental and field conditions.]**—*Trud. Inst. Vet., Alma-Ata.* **6,** 83-91. [In Russian.] **2801**

Strain 10/5 was obtained from a freshly-isolated strain of *Br. melitensis* passaged several times in cattle and finally, for four serial passages, in the carp *(Cyprinus carpio)*. This strain persisted in sheep for up to 30–45 days after inoculation. It was said to provide 100% immunity after 3 months and 69% immunity after 7½ months, compared with 70% and 23%, respectively, in sheep vaccinated with Strain 19. The abortion rate in 1,200 vaccinated ewes was 5 times lower than that of 630 unvaccinated ewes.—R.M.

NIŽNÁNSKY, F., GMITTER, J. & OFÚKANÝ, L. (1956). Príspevok k epizootológii a prírodnej ohniskovosti brucelózy pol'ných zajacov. **[*Brucella suis* infection in wild hares in Slo-**

vakia.]—*Vet. Čas.* **5,** 81-89. [In Slovak. German and Russian summaries.] **2802**

During 1951–54 *Br. suis* was isolated from 47 wild hares in Slovakia. The infection was thought to have been contracted from domestic animals. The role of hares as carriers and potential disseminators of brucellosis is discussed. [See also *V.B.* **26,** 1544.] —E.G.

KARSTEN. (1956). Die Ursache von Wert und Zuverlässigkeit der uns für die Typendifferenzierung der Brucellen zur Verfügung stehenden Verfahren. **[Value and reliability of the available methods for typing brucella.]** —*Dtsch. tierärztl. Wschr.* **63,** 25-29 & 41-45. **2803**

Various methods for typing *Brucella* are reviewed and their relative value in the differentiation of *Br. melitensis, Br. abortus,* and *Br. suis* is discussed. Although none of the known methods is as yet sufficiently reliable to permit a clear differentiation between these three types, sufficient evidence can be derived from them to suggest that each type has specific pathological properties in man and animals on which prophylactic measures can be based.—F. K. LEEB.

CALHOUN, E. L., MOHR, C. O. & ALFORD, H. I., JR. (1956). **Dogs and other animals as hosts of tularemia and of vector ticks in Arkansas.**—*Amer. J. Hyg.* **63,** 127-135. [Abst. from authors' summary.] **2804**

Evidence is presented which indicates that dogs are important disseminators of *Amblyomma americanum* and *Dermacentor variabilis,* vectors of *Brucella tularensis.* Of 136 dogs tested for tularaemia by the serum agglutination test, 44 gave positive reactions in dilutions varying from 1 : 20 to 1 : 2,560. Raccoons and opossums, and possibly cattle, also gave positive reactions; incomplete studies indicate that these do not harbour large numbers of either *A. americanum* or *D. variabilis.* All of 15 rabbits tested gave negative reactions.

NIŽNÁNSKY, F., KRČMÉRY, V. & OFÚKANÝ, L. (1956). Príprava, hodnotenie a terénna použitel'nosť brucelových polysacharidov pri komplexnej diagnostike brucelózy. **[Preparation, evaluation and use of brucella polysaccharides in diagnosis.]**—*Vet. Čas.* **5,** 90-105. [In Slovak. German and Russian summaries.] **2805**

The authors discussed production and possibilities in the field of brucella polysaccharides for skin tests, prepared either by the method described by Mosimann [*V.B.* **22,** 343] or by that of Fuller for polysaccharides of haemolytic streptococci [*V.B.* **8,** p. 742]. Preliminary tests were carried out in 1,672 cattle and 1,323 pigs. Results were compared with those obtained by the complement-fixation, tube-agglutination and milk tests. Based on these preliminary results, the allergic test was a useful supplementary diagnostic method and further research is being carried out.—E.G.

ROSSI, P. & KOLOCHINE-ERBER. (1956). Leptospiroses équines. **[Leptospirosis in horses.]** —*Rec. Méd. vét.* **132,** 21-35. **2806**

Leptospira agglutinins were present in sera from 84 out of 107 suspected cases in various parts of France. One of the 84 horses was bacteriologically positive; 18 others had symptoms of haemoglobinuria, jaundice, diarrhoea with anaemia, or a brain-liver syndrome. Five serological types of leptospira identified were, in order of importance, *L. australis, L. icterohaemorrhagiae, L. grippo-typhosa, L. canicola, L. pomona.*—R.M.

MORTER, R. L. & MORSE, E. V. (1956). **Experimental leptospirosis. II. The role of calves in the transmission of *Leptospira pomona* among cattle, swine, sheep and goats.**—*J. Amer. vet. med. Ass.* **128,** 408-413. [Authors' summary modified.] **2807**

Six calves were experimentally infected with *L. pomona.* Only the 3 Herefords developed haemoglobinuria; one died on the 8th day after inoculation and another on the 25th day. All 6 developed leptospiraemia and 4 excreted the organism in the urine. Infection was spread, by contact, to 3 of 4 pregnant heifers, to all of 4 pigs, and to one of 2 goats; but all of 4 sheep remained healthy. Clinical signs of infection appeared 6–24 days after exposure. The course of the infection in calves, heifers, pigs and a goat, and the serological findings, were discussed.

MOCHMANN, H. (1955). Die Verbreitung der Canicolaleptospirose in der DDR. **[Distribution of *Leptospira canicola* infection in East Germany.]**—*Zbl. Bakt. I (Orig.)* **164,** 551-559. [English, French and Russian summaries.] **2808**

The incidence of *L. canicola* infection in human beings in East Germany was low, and there was no special geographical distribution. The agglutination test was positive with sera from 13 out of 205 cattle, 25 out of 1,065

horses, 1 out of 220 sheep, 328 out of 863 dogs, 2 out of 15 cats, and 1 out of 259 fowls. —R.M.

HEMSLEY, L. A. (1956). *Leptospira canicola* **and chronic nephritis in cats.**—*Vet. Rec.* **68,** 300-301. [Author's summary modified.] **2809**

The aetiology of nephritis in the cat is obscure. Three cases of positive reaction to the *L. canicola* agglutination test are recorded, it is believed for the first time. The incidence of nephritis and leptospirosis in cats is uncertain, but appears to be low. The results of a survey of 180 cat sera are given. Clinically, chronic nephritis in the cat resembles that of the dog. The kidney changes may not be obvious macroscopically, and the histological picture is varied, both "interstitial" and glomerular fibrosis occurring. The presence of *L. canicola* in cats is of some importance in public health.

BACHMANN, R. (1956). Epizootologische Betrachtungen zur Canicola-Leptospirose. [*L. canicola* **infection in man from dogs.**]—*Mh. VetMed.* **11,** 151-152. **2810**

An account of *Leptospira canicola* infection in 6 dog owners in Berlin. Three of the dogs concerned yielded titres of up to 1 : 6,400 against *L. canicola.* The remainder had been killed before they could be examined serologically.—E.G.

LAWRENCE, J. J. (1955). **The lysis of le tospires by antiserum.** — *Aust. J. exp. Biol. med. Sci.* **33,** 91-101. **2811**

This paper records an investigation into the morphological dynamics of the leptospiral agglutination lysis test. Low dilutions of antiserum produced loose, floccular clumps of leptospires, and, indeed, all dead organisms reacted in this way. High dilutions of antiserum produced dense refractile spheres, termed "lysis balls". In these structures the organisms did not appear to be dying and showed no signs of lysis. Leptospires prevented from clumping by incorporation in a solid medium showed no evidence of lysis by antiserum.—J. H. WHITTEM.

KATIĆ, R. V. & DŽINLESKI, B. G. (1955). Rezultati ispitivanja antigene vrednosti nekih naših izolovanih sojeva Welchia. [**Antigenic characteristics of some strains o** *Clostridium welchii.*]—*Veterinaria, Sarajevo.* **4,** 271-279. [In Croat. English summary.] **2812**

The antigenic properties of 10 strains of *Cl. welchii* Type B, 10 of Type C and 2 of Type D were studied.—E.G.

WOSZCZYŃSKI, Z. (1956). Bradsot owiec i jego zwakczanie. [**Bradsot in sheep and its control.**]—*Méd. vét., Varsovie.* **12,** 211-213. [In Polish.] **2813**

Numerous outbreaks of "bradsot" occurred in Poland in October 1955. Bacteriological examination yielded *Cl. septicum, Cl. oedematiens* and *Cl. welchii* Type B. During an outbreak all "in-contact" animals are isolated, the pastures and feeding troughs changed and carcasses of dead sheep burned or buried. A stand-still order is imposed and all animals vaccinated twice within an interval of 14–18 days. Immunity is acquired in 7–10 days after the second inoculation and lasts about 6 months. 14 days after the last death all sheep are dipped and the stand-still order is lifted. Prophylactically all sheep upwards of 4 months old are vaccinated annually and in localities where outbreaks have occurred in the past the vaccination is to be completed a month before the expected onset of the disease.

—M. GITTER.

MCERLEAN, B. A. (1956). **A study of** *Clostridium septicum.*—*Irish vet. J.* **10,** 2-9 & 14-20, 22-37 & 42-45. **2814**

Seven strains of *Cl. septicum* were identical in fermentation reactions, pathogenicity and haemolysin production. One differed in that it did not grow well in plain media nor form filaments on the g. pig liver surface. Five cross agglutinated, one autoagglutinated and one did not react, but rabbit antiserum of each strain had antihaemolytic properties against all the others. *Cl. septicum* antiserum protected g. pigs against 1 m.l.d. of *Cl. chauvoei* but the converse was not true. The necrotic effect of *Cl. septicum* was neutralized by *Cl. septicum* antiserum but not by *Cl. chauvoei* antiserum. The haemolysins of both species affected the r.b.c. of 8 species of domestic animals similarly, except those of dogs which were haemolysed only by *Cl. chauvoei.*—A. SEAMAN.

BUTLER, H. C. & MARSH, H. (1956). **Blackleg of the fetus in ewes.** — *J. Amer. vet. med. Ass.* **128,** 401-402. **2815**

On two Montana farms, blackleg infection developed in pregnant ewes soon after they had been shorn. After treatment with penicillin, some of the ewes recovered; others

developed a distended abdomen and died. *Clostridium chauvoei* was recovered from the oedematous foetuses in these ewes.

BECKER, M. & PILZ, H. (1955). Zur Frage der Tetanus-Schutzimpfung einschliesslich Simultanimpfung. **[Vaccination against tetanus.]**—*Arch. exp. VetMed.* **9,** 648-658. **2816**

The authors studied antitoxin levels in sheep, following passive, active and simultaneous immunization. A satisfactory immunity was achieved by the simultaneous use of serum and adsorbed vaccine. Factors affecting immunity, *e.g.* composition of vaccine, dosage and method of application, are discussed.—E.G.

TVORIĆ, S. (1955). Uticaj različitih količina precipitiranog tetaničnog anatoksina na stvaranje imuniteta kod konja. **[Effect of various doses of precipitated tetanus toxoid on immunity in horses.]**—*Vet. Glasn.* **9,** 526-533. [In Croat.] **2817**

Immunity against tetanus was produced in horses with three injections of 1–2 ml. of aluminium hydroxide precipitated toxoid. Doses of 5 ml. and 10 ml., however, produced a higher immunity. When immunity produced by a first dose of 10 ml. was enhanced by subsequent doses of 1, 2, 5 or 10 ml., the resulting immunity was the same, irrespective of the sizes of the subsequent doses.—E.G.

BOOTH, N. H. & PIERSON, R. E. (1956). **Treatment of tetanus with d-tubocurarine chloride.** — *J. Amer. vet. med. Ass.* **128,** 257-261. [Authors' summary modified.] **2818**

The literature on the treatment of tetanus in veterinary medicine is reviewed. Severe tetanus in a horse was successfully treated with aqueous and oil preparations of d-tubocurarine chloride. The drug is recommended for the control of tetanic spasms.

PRÉVOT, A.-R., COLLIN, P. & SILLIOC, R. (1956). Étude sur le botulisme du vison en France. **[Botulism in mink in France.]** — *Rec. Méd. vét.* **132,** 188-193. **2819**

In an outbreak on a mink farm 37 out of 54 mink and 15 out of 20 ducks died with symptoms of botulism. From one of 3 mink examined, toxin was isolated. This was neutralized by anti-C serum, as was that from the only duck examined. *Cl. botulinum* was recovered from one dead mink. Polyvalent serum was used to protect the remaining mink. The outbreak was probably due to the only common factor between the ducks and the mink, namely the meat in the diet.

—A. SEAMAN.

ROSSI, C. (1956). Su alcuni focolai di gangrena alare dei pulcini. **[Gangrene of the wings in chicks.]**—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 530-533. [English and French summaries.] **2820**

A disease causing heavy mortality among chicks aged 25–40 days at 5 poultry breeding establishments was investigated. It occurred in an acute and a hyperacute form. The former was characterized by catarrhal conjunctivitis, crust formation (especially on the back), joint lesions, purulent panophthalmia and death in 8–10 days. In the hyperacute form there were catarrhal conjunctivitis, haemorrhagic oedema of one wing (sometimes both), which underwent moist gangrene with an offensive odour, and death in 24–48 hours. P.M. lesions included haemorrhagic enteritis, endocarditis, ochre-coloured foci in the myocardium, the kidneys being yellowish and friable. *Staphylococcus aureus* was isolated from the skin and joint lesions and *Clostridium welchii* Type D was isolated from the wing lesions (it was also always present in the kidneys). Inoculation of the latter into the wing tips of young chicks reproduced the disease. It was observed that the dietary protein was high and, in the case of the most severely affected flock, yeast, cod-liver oil and mineral salts had recently been added to the diet. The disease was checked by lowering the protein content of the diet. The possible relationship between the diet and the micro-organisms isolated from the lesions is discussed.—T.E.G.R.

HEINEMANN, F. (1956). Beobachtungen über Ursachen und Verlauf enzootischer Fertilitätsstörungen in der Rinderherde einer Eifelgemeinde als Beitrag zum Vibriosisproblem. **[Causes and course of endemic bovine sterility in the Eifel region of Germany, in relation to vibriosis.]**—*Mh. Tierheilk.* **8,** 34-48. **2821**

In a community of 350 cattle studied over 4 years, the typical clinical picture of vibriosis was exhibited, including foetal resorption; ovarian cysts were also frequent, indicating that there was a functional component of the disorder. The phosphoric acid content of the soil was less than 5–7 mg. per 100 g. In 3 cases a vibrio was isolated and identified sero-

logically. Evidence was obtained that other vaginal organisms were non-pathogenic.
—F. L. M. Dawson.

Mundt, W. (1956). Lyophilisation von Vibrio foetus- und Spirillum suis-Kulturmaterial aus flüssigen Nährböden. **[Lyophilization of *Vibrio fetus* and *V. suis* culture material from liquid media.]**—*Prakt. Tierarzt.* No. 1. 6 & 8. **2822**

The survival rate of bacterial cultures can be increased by freeze-drying when suitable protective colloids, namely cattle serum, sterile skim milk, gelatin, peptone and other protein solutions are used. Freeze-dried *V. fetus* and *V. suis* cultures from Thiol medium, when transferred to new media 13–16 months later, yielded normal growth after 4–10 days under anaerobic conditions at 37°C. In a further experiment where no protective colloid was used *V. fetus* and *V. suis* retained their viability for 7 months at room temp. Because of the remarkable resistance of these micro-organisms to low temperatures, they are likely to survive deep-freezing as used with semen for artificial insemination.—F. K. Leeb.

Zagaevski, I. S. (1956). **[Factors contributing to the establishment of the microflora in eggs, and methods of chlorinating eggs before incubation.]**—*Veterinariya, Moscow.* **33,** No. 2. pp. 58-63. [In Russian.] **2823**

The white and yolk of 4,260 new-laid eggs were examined for the presence of *Salmonella pullorum* and *S. typhi-murium*: the former was isolated from 0·2% of the yolks of hens' eggs, and the latter from 0·5% of the yolks of duck and goose eggs; the white was sterile. In another investigation, 800 eggs from fowls infected with *S. pullorum* and 310 eggs from ducks infected with *S. typhi-murium* were examined. The respective organisms were isolated from the shell of 74 hens' and 44 duck eggs, and from the yolk of 42 hens' and 13 duck eggs; the white was again sterile.

Bacterial contamination was prevalent in the yolks of hens' and duck eggs from 300 birds with vitamin A deficiency: 27–31% of the yolks contained staphylococci, intestinal bacteria or *Proteus* spp. New-laid eggs from healthy birds were usually sterile.

Z. studied the proliferation of mould fungi and bacteria on the egg shell during incubation. *Aspergillus fumigatus* penetrated the shell after storage of the egg for 3 months at 1°C., 1½ months at 5°–6°C., 1½–2 weeks at 14°–15°C., and (in the presence of high humidity) 48–56 hours at 28°–30°C. In eggs kept at 16°–18°C., *Proteus* spp. and *Pseudomonas* spp. penetrated the shell after 6–7 days, and intestinal bacteria after 10–11 days. *S. typhi-murium* penetrated the shell after 11 days at 16°–18°C. and after 2–3 days at 37°–38°C.

The importance of good hygiene was demonstrated by the examination of 280 duck eggs laid on wet, dirty litter. After 10 days' storage at 14°–18°C. the white and yolk of 5–6% of the eggs were found to be contaminated, and there were numerous colonies of bacteria and mould fungi on the shell membrane in 31%. No contamination of the yolk and white was found in 450 duck eggs, laid on clean, dry litter and similarly stored, and bacteria and fungi were present on the shell membrane, in isolated colonies, in 3·1%. The hatchability of contaminated eggs was lower, and the incidence of birds with stunted growth was higher, than in uncontaminated eggs.

For pre-incubation disinfection, eggs were immersed for 3 min. in chlorinated lime soln. containing 1·5% active chlorine, or for ½–1½ min in 0·1 iodine soln. (made up with 10 g. iodine and 15 g. potassium iodide in a litre of water). Z. gave the results of extensive tests of the hatchability of hens', duck and goose eggs so treated: in general it was 8–16% higher in treated than in untreated eggs.
—R.M.

Kuprowski, M. (1956). O moniliasie u głuszców i o entero-hepatitis. **[Moniliasis in capercaillie in relation to blackhead.]** — *Méd. vét., Varsovie.* **12,** 201-204. [In Polish. German and Russian summaries.] **2824**

[See *V.B.* **26,** 1215.] P.M. examinations of 3 capercaillie *(Tetrao urogallus)* reared in captivity revealed acute enteritis, pale, friable liver, and, in one case, marked enlargement of the spleen and dilatation of the caeca. Numerous structures morphologically resembling *Candida albicans* were seen on histological examination of the internal organs. A yeast of the genus *Oidium* was isolated from the liver and lungs. K. quoted again the work of Wetzel & Enigk (1939); he considers that moniliasis in fowls can occur in the form of "thrush", "blackhead" or mycotic septicaemia. In the last-mentioned condition, which often runs a peracute course in very young birds, P.M. examination may fail to reveal macroscopic lesions.—M. Gitter.

WINTER, W. D., JR. & FOLEY, G. E. (1956). **Enhancement of *Candida* infection: differential distribution of renal lesions in mice treated with aureomycin.**—*J. infect. Dis.* **98,** 150-156. [Authors' summary modified.] **2825**

The spread of *C. albicans* following i/p injection into mice was by direct haematogenous dissemination. The major lesions were confined to the renal tissues and consisted of scattered miliary abscesses deep in the substance of the kidney. The addition of hog gastric mucin to the inoculum had no significant effect upon either mortality or the character of renal lesions. Similar results were observed in mice infected i/v, except that the renal lesions developed more rapidly. The administration of aureomycin, oxytetracycline or tetracycline to infected mice not only increased mortality early in the course of infection, but resulted in a massive invasion of the renal cortex from the peritonealized surfaces of the kidney, in contrast to the deep-seated renal lesions previously observed. Cortisone acetate therapy resulted in lesions identical with those observed in mice with aureomycin. Aureomycin or cortisone acetate therapy increased the pathogenicity of *C. albicans,* as evidenced by development of the characteristic renal lesions following injection of inocula which were ineffective in untreated mice. This enhancement of pathogenicity appeared to be associated with decreased haematogenous dissemination.

WINNER, H. I. (1956). **Immunity in experimental moniliasis.**—*J. Path. Bact.* **71,** 234-237. [Author's summary and conclusions modified.] **2826**

Rabbits possessed a considerable degree of natural immunity to i/v injected virulent *Candida albicans.* The presence of natural or of artificially-induced agglutinins did not protect the animals from the lethal effects of the organism, and the lesions produced in immunized animals resembled those noted in the non-immunized. Provided that the infecting dose exceeded a certain threshold, the survival time was independent of the dose in both immunized and non-immunized animals. It is suggested that *C. albicans* elaborates a toxin which is unaffected by the agglutinins.

MENGES, R. W. & GEORG, L. K. (1956). **An epizootic of ringworm among guinea pigs caused by *Trichophyton mentagrophytes.*** —*J. Amer. vet. med. Ass.* **128,** 395-398. [Authors' summary modified.] **2827**

An outbreak of ringworm occurred among several thousand g. pigs in a laboratory in Georgia. *Trichophyton mentagrophytes* was isolated from 130 animals. The lesions, which occurred chiefly on the head, but also on the back, were scaly, circular, and there was erythema and loss of hair. Some lesions healed spontaneously.

PROKHOROVA, E. (1956). **[Ringworm in sheep.]** —*Veterinariya, Moscow.* **33,** No. 4. p. 50. [In Russian.] **2828**

P. reported ringworm caused by *Trichophyton* in sheep on collective farms in Uzbekistan. The disease was characterized by a pasty deposit on and around the nose and eyes and a fatty deposit on the ears. It responded to treatment with iodine solution or creolin ointment.—R.M.

DEL GIUDICE, V. (1956). Aspergillosi polmonare in un bovino. Studio istopatologico. **[Histopathology of pulmonary aspergillosis in an ox.]**—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 393-397. [English and French summaries.] **2829**

A report of lung aspergillosis in an ox slaughtered in the Bologna abattoir. The lungs had necrotic granulomatous foci, and foci of fibrinous alveolitis. The pleura over the diseased parts was opaque, greyish and thickened.—I. W. JENNINGS.

MANOCCHIO, I. (1956). Granuloma eosinofilico faringeo e polmonare in bovino con reperti di *Nocardia-asteroides.* **[Granulomatous eosinophilic lesions of the pharynx and lungs of an ox, associated with *Actinomyces asteroides.*]** — *Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 420-424. [English and French summaries.] **2830**

In a 5-year-old ox, slaughtered because of respiratory distress, two nodules, the size of small oranges, were found in the pharynx, and a smaller secondary nodule in the lungs. Histologically, these showed the features of eosinophilic granulomata, and *Actinomyces asteroides* was isolated from them.

—I. W. JENNINGS.

JOHNSTON, K. G. (1956). **Systemic nocardiosis in the dog.**—*J. Path. Bact.* **71,** 7-14. [Author's summary slightly modified.] **2831**

The more recent publications on canine nocardiosis are briefly reviewed. Two new cases are reported, one a pulmonary pseudotuberculosis with early blood-borne spread, the other a widely disseminated disease involving

parenchymatous organs, the subcutis and the thoracic spinal column. The biological characteristics of the species of *Nocardia* isolated from each case are presented in some detail.

LINDQVIST, K. (1956). **A case of *Bacteroides fragilis* abortion in a ewe.**—*Nord. VetMed.* **8,** 320-324. [In English. German and Danish summaries. Abst. from English summary.] **2832**

A Gram-negative, anaerobic, non-spore-forming rod was isolated in pure culture from several organs of an aborted sheep foetus, and was classified as *Bacteroides (Fusiformis) fragilis*. No record has been found of *B. fragilis* infection in domestic animals.

DORONIN, N. N. & TUPITSUIN, I. G. (1954). **[Review of studies on caprine contagious pleuro-pneumonia in Kazakhstan.]**—*Trud. Inst. Vet., Alma-Ata.* **6,** 275-290. [In Russian.] **2833**

The authors reviewed the Russian literature on caprine contagious pleuro-pneumonia, which was apparently first recorded in Kazakhstan in 1831, and described their own work. Experimental reproduction of the disease was very difficult and succeeded only after the intratracheal injection of large doses of infective material. Artificial infection more commonly resulted in a mild and non-fatal type of illness. They suggested that under natural conditions the disease may pursue a subclinical course in some goats.

The complement-fixation test gave unreliable results in diagnosis, owing to the anti-complementary property of goat serum. Aluminium hydroxide formol vaccine [see *V.B.* **23,** 2789] was tried out under laboratory and field conditions, but was only 70% effective. On the other hand, aluminium hydroxide terpene vaccine proved to be over 90% effective and was given to some 17,000 goats. Given s/c it caused mild local and general reactions.—R.M.

RODWELL, A. W. (1956). **The role of serum in the nutrition of *Asterococcus mycoides*.**—*Aust. J. biol. Sci.* **9,** 105-116. **2834**

For growth of the causal organism of bovine contagious pleuro-pneumonia, factors are required which may be supplied by serum or ascitic fluid. R. demonstrated that serum could be replaced by balanced mixtures of a heat-stable protein fraction, cholesterol, and oleate, when a suitable osmotic pressure was provided. It was concluded that serum provides a non-toxic source of oleate, probably as a molecular association with protein and cholesterol, but evidence did not indicate whether or not cholesterol is also required as a nutrient.—R. BARRY.

ADLER, H. E., YAMAMOTO, R. & CORDY, D. R. (1956). **The effect of certain antibiotics and arsenicals in inhibiting growth of pleuropneumonialike organisms isolated from goats and sheep.**—*Cornell Vet.* **46,** 206-216. [Authors' summary modified.] **2835**

Erythromycin and oxytetracycline at the 1-ml dose significantly prolonged the life of embryos infected with 10^6 LD_{50} of a caprine strain of PPLO. Under similar conditions chlortetracycline, tetracycline, viridogrisein, streptomycin, dihydrostreptomycin, stovarsol, and 3-nitro-4-hydroxyphenyl arsonic acid were ineffective. Erythromycin, oxytetracycline, chlortetracycline, and stovarsol were effective in prolonging the life of embryos infected with another caprine strain. The authors also studied the *in vitro* activity of antibiotics against these goat strains and also 5 strains from sheep. The majority were most sensitive to oxytetracycline and tetracycline and to a lesser extent to chlortetracycline, erythromycin, streptomycin, and dihydrostreptomycin. There was apparently a difference in susceptibility to antibiotics, depending on whether the strain was obtained from goats or sheep.

ENTICKNAP, J. B. (1956). **The effect of reduction of bacterial infiltration by aureomycin on the normal alimentary lymphoid tissue of the rabbit.**—*J. comp. Path.* **66,** 102-108. [Author's conclusions modified.] **2836**

Administration of aureomycin to rabbits reduced the infiltration of bacteria into the intestinal lymphoid tissue and markedly reduced the weight of the tissue. Spleen and thymus were not affected. The intestinal wall of the rabbit contains about 10 times as much lymphoid tissue, weight for weight, as that of man, and it is suggested that the stimuli provided by the intense bacterial infiltration in the rabbit are responsible for this.

I. MCGOWAN, B. & SHULTZ, G. (1956). **Epididymitis of rams: clinical description and field aspects.**—*Cornell Vet.* **46,** 277-281. [Authors' summary modified.] **2837**

II. KENNEDY, P. C., FRAZIER, L. M. & MCGOWAN, B. (1956). **Epididymitis in rams: pathology and bacteriology.**—*Ibid.* 303-319. [Authors' summary modified.] **2838**

I. A disease of rams in California was clinically indistinguishable from the epididy-

mitis reported by workers in Australia and New Zealand [see *V.B.* **23,** 2479, **25,** 2332–3]. The consequences of infection did not seem as detrimental to flock fertility as might be expected on the basis of the high incidence of the disease. However, it was felt that epididymitis may play a role in reducing the fertility of rams used for breeding during the hot summer months.

II. The authors described the gross and microscopic lesions of epididymitis in rams. A brucella-like organism identical with that reported by the Australian and New Zealand workers was recovered from 11 cases of epididymitis. The growth requirements of this organism and its morphological and biochemical characteristics were described. Intratesticular inoculation of rams and rats with the organism resulted in epididymitis.

Scheff, G. J., Scheff, I. M. & Eiseman, G. (1956). **Concerning the mechanism of *Bartonella* anemia in splenectomized rats.** — *J. infect. Dis.* **98,** 113-120. [Authors' summary slightly modified.] **2839**

To elucidate the mechanism of *Bartonella muris* infection various experimental approaches to the problem were used. The findings seem to indicate that, in addition to the specific properties of the causative agent, the fate of the splenectomized carrier animal is contingent on the ability or lack of ability to maintain a balanced equilibrium in the blood in spite of increased r.b.c. destruction. The spleen, while still present, regains its haematopoietic potential and is particularly active in aiding the bone marrow in this endeavour.

Biberstein, E. L., Barr, L. M., Larrow, L. L. & Roberts, S. J. (1956). **Eperythrozoonosis of swine in New York State.**—*Cornell Vet.* **46,** 288-297. **2840**

A case report of *Eperythrozoon* infection in a gilt aged 8 months from a farm in New York State; the infection has not been reported from this State before. Diagnosis was confirmed by the inoculation of 4 pigs with blood taken at different stages of the infection.—R.M.

See also absts. **2981** (blackleg); **3044** (report, Tanganyika); **2983** (spirochaete infection in rabbit); **3045** (book, microbiology); **3051** (book, zoonoses).

DISEASES CAUSED BY PROTOZOAN PARASITES

Anderson, E., Saxe, L. H. & Beams, H. W. (1956). **Electron microscope observations of *Trypanosoma equiperdum.*—*J. Parasit.* 42,** 11-16. **2841**

An account of the fine structure of *T. equiperdum,* as revealed by a study of ultrathin sections by electron microscopy. There are 10 photomicrographs.—R.M.

Cantrell, W. (1956). **Behavior of mixtures of oxophenarsine-resistant and unmodified strains of *Trypanosoma equiperdum* in the rat.**—*Exp. Parasit.* **5,** 178-190. [Author's summary modified.] **2842**

An oxophenarsine-resistant strain of *T. equiperdum* did not maintain itself in a mixture with its unmodified parent strain during serial passage in rats. The rate of disappearance of the resistant strain was related to the sojourn of the resistant strain in the rat, the resistant strain in its 2nd passage disappearing more rapidly than the same strain in its 12th passage. A highly resistant strain maintained in rats lost most of its resistance after 6–8 months. The same strain maintained in mice continued to be highly resistant.

Mercurio, G. (1956). Ricerche sulla leishmaniosi canina nell'agro palermitano. [**A survey of canine leishmaniasis in Palermo, Italy.**] — *Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 695-697. [English and French summaries.] **2843**

Human leishmaniasis disappeared from Palermo in 1953. A survey of 434 dogs carried out from September 1954 to February 1955 revealed only 34 positive reactions to serological tests for leishmaniasis. In no case was the organism demonstrable in either smears or cultures.—I. W. Jennings.

Markowski, A. (1956). Badania nad rozprzestrzenieniem zarazy rzęsistkowej w rejonie podwarszawskim oraz adaptacją do warunków terenowych diagnostyki tego schorzenia przez hodowlę na pożywkach sztucznych. [**Diagnosis of trichomoniasis in the Warsaw district.**]—*Méd. vét., Varsovie.* **12,** 205-206. [In Polish. English and Russian summaries.] **2844**

Out of 360 bulls examined 102 were infected, and only 3 villages out of 30 covered by this investigation were free from infection.

Microscopic examination revealed 64 and cultural examination 38 of the infected bulls. —M. GITTER.

SCHOENHERR, K. -E. (1956). Serologische Untersuchungen über Trichomonaden. **[Serological studies of trichomonads.]** — *Z. ImmunForsch.* **113,** 83-94. **2845**

S. was able to distinguish *Trichomonas foetus* from *Tr. vaginalis, Tr. columbae* and *Tr. ardin-delteili* by means of the precipitation test, and an agglutination test using a homogenized suspension of trichomonads ("cell-fragment" agglutination). No antibodies could be detected in the serum of animals with *Trichomonas* infection.—R.M.

MCENTEGART, M. G. (1956). **Serological comparison of a strain of *Trichomonas vaginalis* with the Belfast and Manley strains of *Trichomonas foetus*.**—*J. Path. Bact.* **71,** 111-115. [Author's summary modified.] **2846**

Immune sera prepared against *Tr. vaginalis, Tr. foetus* var. Belfast and *Tr. foetus* var. Manley were examined for ability to agglutinate sheep r.b.c. sensitized with extracts of the organisms. It was revealed that the three strains are serologically distinct.

NEAL, F. C. (1956). **Control of bovine coccidiosis outbreaks with sulfaquinoxaline in drinking water.** — *Sthwest. Vet.* **9,** 215-217. **2847**

Uncontrolled experiments suggested that sulphaquinoxaline, given at the rate of 0·01 grain/lb. body wt. for as long as 21 days, was effective in controlling two outbreaks of bovine coccidiosis.—S. BRIAN KENDALL.

DELIĆ, S. (1955). Prilog poznavanju ovčjih kokcidija na području Bosne i Hercegovine, s osobitim osvrtom na *E. arloingi*. **[Coccidiosis in sheep in Bosnia-Hercegovina, with special reference to *E. arloingi*.]**—*Veterinaria, Sarajevo.* **4,** 374-401. [Thesis, Sarajevo.] [In Croat. English summary.] **2848**

During 1953–54 D. examined 605 lambs and 98 adult sheep, 64% of which had coccidiosis. Of these, *Eimeria arloingi* was present in 408, *E. parva* in 113, *E. nina kohlyakimovi* in 99, *E. faurei* in 83 and *E. intricata* in 56. Highest incidence was observed during June–July in lambs 2–6 months of age. Temperatures of about 30°C. were most favourable for the development of oocysts of *E. arloingi*. Those kept immersed in water for periods up to 71 days sporulated when transferred to optimal conditions. When exposed to sunlight at temperatures from 29° to 44°C., they remained viable for 3 hours on dry sand and for 4 hours on damp soil. Exposure for periods exceeding 5 hours appeared to kill them.—E.G.

DÉOM, J. & MORTELMANS, J. (1956). Observations sur la coccidiose du mouton et de la chèvre au Congo Belge. Essais thérapeutiques. **[Treatment of coccidiosis in sheep and goats.]**—*Ann. Soc. belge Méd. trop.* **36,** 47-52. [English summary.] **2849**

Examination of faeces from 230 sheep revealed the presence of oocysts in 70%. Species of coccidia identified were *Eimeria arloingi, E. parva* and *E. faurei*. Three out of six goats examined were infested with *E. parva* and/or *E. arloingi*. Clinical symptoms of coccidiosis in sheep and goats are not common, but mortality may occur. Treatment with nitrofurazone is stated to be effective. Chloraquin sulphate ("Nivaquine") was ineffective.—S. BRIAN KENDALL.

ZHALOBOVSKI, I. L. & KOZLOVSKI, E. V. (1954). **[Experimental treatment of coccidiosis in rabbits by the intravenous injection of acriflavine solution.]** — *Trud. Inst. Vet., Alma-Ata.* **6,** 404-406. [In Russian.] **2850**

The authors claimed to have cured coccidiosis in the rabbit by injecting into an ear vein 1 ml. of a 1% aqueous soln. acriflavine. Treatment was repeated twice at intervals of 2–3 days.—R.M.

SCHOLTYSECK, E. (1956). Untersuchungen über die Coccidieninfektion bei Vögeln. **[Studies of avian coccidiosis.]**—*Zbl. Bakt. I. (Orig.)* **165,** 275-289. [English, French and Russian summaries.] **2851**

S. examined 1,381 wild birds belonging to 146 species. *Eimeria* or *Isospora* were found in 497 of them, of which 4 had died from acute coccidiosis. Infection was more common in free-living birds than in those kept in captivity, and was most prevalent during September and October.—R.M.

GARDINER, J. L. (1955). **The severity of cecal coccidiosis infection in chickens as related to the age of the host and the number of oocysts ingested.**—*Poult. Sci.* **34,** 415-420. **2852**

Chicks from the same hatch were maintained under parasite-free conditions, and at weekly intervals, starting at one week of age and continuing up to the end of the sixth week of age, a random selection of chicks was removed and divided into four equal groups.

Three of these groups were challenged respectively with 50,000, 100,000 or 200,000 sporulated oocysts of *Eimeria tenella;* one group being kept as an uninoculated control. The results of infection were assessed on the bases of rate of mortality, weight gain and grade of lesion in the caeca. It was considered that, during the first 6 weeks of life, chicks were least resistant to caecal coccidiosis at 4 weeks of age and most resistant at 2 weeks. At 4 weeks of age, the number of oocysts ingested seemed to have less importance than in younger birds.

—S. Brian Kendall.

Kendall, S. B. & Joyner, L. P. (1956). **The synergism between pyrimethamine and sulphadimethylpyrimidine in the control of *Eimeria tenella*.**—*J. comp. Path.* **66,** 145-150. **2853**

When young chickens, experimentally infected with *E. tenella,* were given a mixture of 0·01% pyrimethamine and 0·1% or 0·05% sulphadimidine in the food, a marked inhibition in the development of the parasite was observed. The inhibition was, however, only temporary and acute disease followed the cessation of treatment. This phenomenon was similar to that described when very high concentrations of a sulphonamide are used in the treatment of *E. tenella.* If, however, the concentration of pyrimethamine was reduced to 0·005%, the drug, in combination with 0·05% sulphadimidine, produced full therapeutic control. In order to observe in greater detail the potentiation of sulphadimidine by pyrimethamine, a series of assays was carried out to determine the dose of pyrimethamine necessary to protect 50% of infected chicks receiving, simultaneously, known subeffective doses of sulphadimidine. The 50% protection points, obtained graphically, indicated a high degree of synergism between the two drugs.

Siegmann, O. (1956). Vergleichende Prüfung der Kokzidiostatika Dagiasol und Sulfoquinoxalin. **[Comparative test of the coccidiostatic drugs nitrophenide and sulphaquinoxaline in chicks.]**—*Arch. Geflügelk.* **20,** 46-66. [English summary.] **2854**

A series of comparative tests of the coccidiostatic effects of nitrophenide and sulphaquinoxaline was made with regard to their toxicity, action on pathogenic species of coccidia, inability to interfere with natural immunization or to stimulate the formation of resistant coccidia, their chemical purity, uniformity and cost. Feeding tests, using chicks up to 9 weeks old, revealed no correlation between food intake, weight increase rates in general and dosage, but 0·1% nitrophenide and 0·06% sulphaquinoxaline did interfere with growth rate. Comparison of their effects on chicks infected with 2 massive doses or with 6 smaller doses of sporulated oocysts of *Eimeria* showed, in their optimum doses, sulphaquinoxaline to be more coccidiostatic than nitrophenide though the latter was preferable as far as growth rate was concerned. S. concluded that both drugs have only a limited application.—M. L. Clarke.

Neitz, W. O. & Jansen, B. C. (1956). **A discussion on the classification of the *Theileridae*.**—*Onderstepoort J. vet. Res.* **27,** 7-18. **2855**

The authors discussed the classification of the Theileridae and gave reasons for the revision of previous classifications. In view of the striking differences between the life-cycles of the Babesidae and those of the Theileridae and Gonderidae they suggested that the former family should be retained in the sub-order Piroplasmidea Wenyon, 1926 and that the latter two families be included in the sub-order Leucosporidea Neitz and Jansen, 1956. Both sub-orders are retained in the order Coccidia of the class Sporozoa.

The revision of the classification is based on the fact that members of the Piroplasmidea multiply by binary fission within the erythrocytes, while members of the Leucosporidea reproduce by schizogony in the leucocytes. The sub-order Leucosporidea is represented by two families Theileridae du Toit, 1918 and Gonderidae Neitz and Jansen, 1956. A single genus and species, *Theileria parva,* is retained in the family Theileridae. The family Gonderidae is represented by two genera *Gonderia* (du Toit, 1918) and *Cytauxzoon* Neitz and Thomas, 1948. Theileridae multiply within the lymphocytes by schizogony, while the Gonderidae reproduce by schizogony within the lymphocytes (*Gonderia* spp.) or within the histiocytes (*Cytauxzoon* sp.), and by binary fisson in the erythrocytes.

It is believed that the above mentioned criteria will serve as a more satisfactory basis for the classification of the *Theileridae.* For the sake of completeness the generic and specific names as well as the generic and specific synonymy are included in the revised list. Following the discovery of *Cytauxzoon* in a duiker (*Sylvicapra* sp.), it is evident that

a large number of the *Theileria* spp. and *Gonderia* spp. described from wild animals cannot be incorporated in this scheme. In order to avoid further confusion in the nomenclature, the authors suggested that they be referred to by the generic name already assigned to them, and that their inclusion into this system be undertaken when all the phases of the life-cycle in the vertebrate host have been established. From this it is obvious that many years will elapse before the classification of this group of micro-organisms can be placed on a permanent basis.

JANSEN, B. C. & NEITZ, W. O. (1956). **The experimental transmission of *Theileria ovis* by *Rhipicephalus evertsi*.—*Onderstepoort J. vet. Res.* 27, 3-6. 2856**

Several splenectomized sheep infected with *Th. ovis* were infested on the ears with larvae of the two-host tick, *R. evertsi*. The ensuing adults successfully transmitted this protozoon to 7 susceptible splenectomized sheep. The incubation period was 14–16 days. Koch bodies were found in very small numbers in 5 sheep. The erythrocytic forms of *Th. ovis* appeared in the peripheral circulation of the sheep between 3 and 9 days after the first appearance of Koch bodies. The reaction in all the sheep was accompanied by increased lymphocyte production in the superficial lymph nodes, fever, and a relatively mild anaemia. These results confirm that schizonts form part of the life-cycle of *Th. ovis*. [According to the revised classification of the Theileridae proposed by Neitz & Jansen (see preceding abst.) *Theileria ovis* is synonymous with *Gonderia ovis*.]

See also absts. 2982 (protozoan infections and encephalitis); 2983 (trypanosome infection); 3044 (report, Tanganyika); 3048 (book, parasitology); 3051 (book, zoonoses).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

FRENKEL, H. S. & RIBELIN, W. E. (1956). **Cultivation of the foot and mouth disease virus in explanted epithelium of the bovine tongue. IX. Growth characteristics of the virus in large scale tissue cultures.—*Amer. J. vet. Res.* 17, 40-44. 2857**

F. & M. disease virus (type O Holland strain) multiplied in large-scale tissue cultures in a stepwise manner from the 4th hour of incubation and the titre of infectious virus reached a peak between the 16th and 22nd hour of incubation. Thereafter it declined. The rapidity with which the peak of growth was reached was proportionate to the size of the dose inoculated and the virus would not apparently multiply when suspended in fluids of pH less than 6·9. This probably accounts, in part, for the rapid cessation of growth and inactivation of virus in cultures incubated for long periods. The immunizing capacity of the culture continued to increase beyond the time when the peak of infectivity had been reached, but the titres of complement-fixing antigen, whilst roughly following those of infectivity to its peak, were variable thereafter and appeared to be unreliable for determining the level of immunizing antigen.

—A. ACKROYD.

RUSHCHITS, A. S. (1954). **[Purification and concentration of foot and mouth disease virus from vesicle fluid.]—*Trud. Inst. Vet., Alma-Ata.* 6, 190-198. [In Russian.] 2858**

M. obtained purification and from ten- to a hundredfold concentration of F. & M. disease virus in vesicle fluid by digestion with trypsin followed by selective adsorption of the virus on a colloidal suspension of calcium sulphate. Virus was recovered from the calcium sulphate by elution with glycerol. He compared the nitrogen and phosphorus composition of the product with that of healthy tongue epithelium subjected to the same process.

—R.M.

PETR, G. (1955). Biochemické studie viru slintavky a kulhavky I. **[Biochemistry of foot and mouth disease virus I.]—*Sborn. čes. Akad. zemědělsk. Věd, Živoč. Výr.* 28, 597-602. [In Czech. German and Russian summaries.] 2859**

P. studied the plasma-fibrinogen level in 12 cattle following infection with F. & M. disease virus. The first increase was 1–2 days after infection, reaching its peak on the seventh day, after which it began to fall gradually, reaching about normal levels 32 days after infection.—E.G.

PYL, G. & HEINIG, A. (1955). Aluminiumsalze organischer Säuren als Aluminium- Hydroxyd- "Ersatz" in der Maul-und-Klauenseuche- Vakzine. **[Aluminium salts of organic acids replacing aluminium hydroxide in foot and mouth disease vaccine.]—*Arch. exp. VetMed.* 9, 724-731. 2860**

Aluminium salicylate was used instead of aluminium hydroxide in the preparation of F.

& M. disease vaccine. The vaccine was tested in 66 cattle and found to have a protective value equal to that of aluminium hydroxide vaccine.—E.G.

ROBERTS, R. H., DICKE, R. J., HANSON, R. P. & FERRIS, D. H. (1956). **Potential insect vectors of vesicular stomatitis in Wisconsin.**—*J. infect. Dis.* **98,** 121-126. [Authors' summary slightly modified.] **2861**

Collections of blood-sucking Diptera were made during the summers of 1951, 1952, and 1953 in Wisconsin within an area where outbreaks of vesicular stomatitis had occurred. There was considerable variation in seasonal distribution of mosquito species during the years under observation, and in species occurring in two counties within the area. The seasonal occurrence of Tabanidae did not coincide with a late summer outbreak of the disease. Little information was obtained on the seasonal distribution of the Heleidae and Simuliidae.

KOMAROV, A. & HORNSTEIN, K. (1955). **[Reaction of cattle to vaccination with rabies virus Strain "Kelev".]**—*Refuah vet.* **12,** pp. 177-180. [In Hebrew. English summary p. 255.] **2862**

Immunization experiments with a rabies virus strain, attenuated by chick-embryo passage are described. Cattle of a herd of 53 of ages ranging from 18 months to 6 years were injected with 6 ml. of a vaccine prepared from a 60% suspension of chick-embryo material of the 101st passage. Details of the technique are described and results of virus neutralization tests made in mice are given in the form of tables. Of 46 post-vaccination serum samples 43 neutralized 29–292 m.l.d. of virulent virus, two gave doubtful and one negative results. No specific rabies antibodies were demonstrable in prevaccination serum samples. —E.G.

WELLS, C. W. (1956). **Notes on some rabies control campaigns involving mass vaccination of dogs with chick embryo-adapted vaccine (Flury strain).**—*J. Malay. vet. med. Ass.* **1,** 42-47. **2863**

The use of chick embryo-adapted virus vaccine (Flury strain) is discussed. It is considered that, if proper care is taken to maintain the viability of the virus, breakdowns in immunity can be avoided and the vaccine will provide an efficient method of rabies control. —T.E.G.R.

VIEUCHANGE, J., VIALAT, C., GRUEST, J. & BÉQUIGNON, R. (1956). Essais de culture *in vitro* du virus rabique des rues. **[*In vitro* cultivation of street rabies virus.]**—*Ann. Inst. Pasteur.* **90,** 361-363. **2864**

Roller tubes were used in attempts to cultivate street rabies virus. Tissues used were mouse and chick embryonic brain, g. pig embryonic kidney and rabbit cornea and sclera. Media were renewed with fresh tissue at intervals varying from 4 to 30 days. When rabbits were inoculated with centrifuged fluid from the media, virulence was demonstrable only intermittently.—M.G.G.

OTTE, H. J. & MOCHMANN, H. (1955). Vaccina inoculata. **[Transmission of cow pox virus from vaccinated human beings to cows.]**—*Zbl. Bakt. I(Orig.)* **164,** 529-534. [English, French and Russian summaries.] **2865**

A man became infected with cow pox after milking cattle with a pox disease of the udder, later shown to be caused by cow pox virus, probably derived from a recently vaccinated child who also milked the cows. The man had received only one inoculation of vaccine during childhood.—R.M.

TRAUB, E. (1955). Über die aktive Immunität von Küken aus virusinfizierten Eiern. **[Active immunity of chicks from virus-infected eggs.]**—*Zbl. Bakt. I. (Orig.)* **164,** 412-423. [English, French and Russian summaries.] **2866**

T. confirmed the findings of Burnet *et al.* [*V.B.* **21,** 1026] that the chick embryo was not capable of forming antibodies against influenza virus. The virus persisted in the organs of chicks from infected eggs for only a few days after hatching. Haemagglutinating antibodies were detected in 30–50% of the chicks 21 days after hatching; in the remainder the virus apparently disappeared before the chick was able to form antibodies. The virus of lymphocytic choriomeningitis was also recovered from chicks hatched from eggs infected with the virus, but no antibodies were detected 3–4 weeks after hatching.—R.M.

SCHERAGO, M., VARELA, G. & HOFER, A. S. (1956). **An epizootic of equine infectious anemia in race horses in Mexico.**—*Amer. J. vet. Res.* **17,** 109-116. **2867**

An account of the investigation of a disease in horses in a racing stable in Mexico, characterized by intermittent periods of either fever or marked watery, non-foetid diarrhoea. The disease had been occurring for some two

years and had been diagnosed as babesiosis or anaplasmosis, but transmission experiments in horses proved it to be equine infectious anaemia. Donkeys were refractory. The complement-fixation test of Altara *et al.* [*V.B.* **24,** 1871] yielded positive reactions in 12, doubtful in 4 and negative in 5 of the 21 cases examined.—A. Ackroyd.

I. Serra, A. (1956). Rapport de l'Institut de Zooprophylaxie expérimentale du Piémont et de la Liguria. **[Report on equine infectious anemia by the Institute for Experimental Zooprophylaxis of Piedmont and Liguria.]**—*Bull. Off. int. Epiz.* **45,** 186-189. **2868**

II. Guarini, G. (1956). Sur la préparation de l'antigène de l'anémie infectieuse des équidés à partir de rate infectée. **[Preparation of equine infectious anaemia antigen from infected spleen.]**—*Ibid.* 190-193. **2869**

III. Guarini, G., Ambrosino, C. & Liberatori, S. (1956). Conservation du pouvoir antigène des sérums lyophilisés de chevaux atteints d'anémie infectieuse. **[Conservation of the antigenic property of lyophilized equine infectious anaemia blood.]**—*Ibid.* 194-199. **2870**

IV. Ambrosino, C., Liberatori, J. & Guarini, G. (1956). Fractionnement par relargage des sérums de chevaux atteints d'anémie infectieuse et caractérisation des fractions ayant un pouvoir antigène et anticorps. **[Fractionation of equine infectious anaemia serum and characteristics of these fractions.]** —*Ibid.* 200-213. **2871**

V. Lehnert, E. (1956). Remarques sur la méthode de fixation du complément modifiée par Altara-Serra-Guarini, destinée au diagnostic sérologique de l'anémie infectieuse des équidés. **[Remarks on the modified complement-fixation reaction described by Altara, Serra and Guarini, for the diagnosis of equine infectious anaemia.]**—*Ibid.* 214-221. **2872**

VI. Serra, A., Guarini, G., Ambrosino, C. & Liberatori, J. (1956). Réponse au mémoire des Professeurs Lehnert et Viriden sur la méthode de déviation du complément modifiée pour le diagnostic de l'anémie infectieuse des solipèdes selon Altara-Serra-Guarini. **[Reply to the Professors Lehnert and Viridén on the modified complement-fixation reaction described by Altara, Serra and Guarini.]**—*Ibid.* 222-230. **2873**

VII. Itikawa, O., Takanami, M. & Shibata, T. (1956). Propriétés physio-chimiques de l'antigène préparé selon la méthode d'Altara-Serra-Guarini pour la réaction de fixation du complément dans l'anémie infectieuse des équidés. **[Properties of equine infectious anaemia antigen prepared by the Altara, Serra and Guarini method.]** —*Ibid.* 243-249. **2874**

I–IV. An account of the complement-fixation test for equine infectious anaemia, with special reference to the antigen. [See also *V.B.* **24,** 1871, 2345 & 3140; **25,** 4030.]

V & VI. Lehnert repeated his criticism that the c.f. test described above was not specific [see *V.B.* **25,** 378]. Serra *et al.* discussed possible reasons for the failure of the test as executed by Lehnert, stating that other workers had confirmed their own opinion that the test was reliable.

VII. The authors, working in Japan, studied the physico-chemical properties of antigen prepared from alcoholic extract of infected spleen. Antigenic activity was present in the lipid fraction of the antigen.—R.M.

Topolnik, E., Aleraj, Z. & Audi, S. (1955). Vezanje komplementa kod virusnog pobačaja kobila. **[The complement-fixation reaction in equine virus abortion.]**—*Vet. Arhiv.* **25,** 188-194. [In Croat. English and French summaries.] **2875**

Serum samples from 250 horses of an area where the incidence of equine virus abortion was high, were examined by the complement-fixation reaction. Of these 42 were positive when 50% haemolysis was taken as a positive reaction, or 24, when complete inhibition of haemolysis was made the criterion of a positive reaction. All 108 control samples from an area free from infection were negative. Mares, which had aborted up to 6 weeks before serological examination, yielded positive reactions, but when more than 2 months had elapsed since abortion, all except one gave negative tests. Some pregnant mares and some which had foaled normally, however, yielded positive reactions. Serum of a g. pig which had aborted following infection with equine abortion virus, reacted positively.

—E.G.

McCollum, W. H., Doll, E. R. & Bryans, J. T. (1956). **Agglutination of horse erythrocytes by tissue extracts from hamsters infected with equine abortion virus.** — *Amer. J. vet. Res.* **17,** 267-270. [Abst. from authors' summary.] **2876**

The hamster-adapted virus of equine

abortion produces, in hamsters, a haemagglutinin for horse r.b.c. This haemagglutinin is present in high titre, in the liver, lung, spleen and urine. Specific antiserum does not inhibit agglutination but serum from horses injected with hamster-adapted virus does. It is considered that the haemagglutinin and the virus particle are not intimately associated. The properties of the haemagglutinin are described.

TOPOLNIK, E., ŠEBETIĆ, Č., ALERAJ, Z., AUDI, S. & ĐUKIĆ, R. (1956). Imunobiološka srodnost virusnog pobačaja kobila i influencije konja. **[Immunological relationship between virus abortion of mares and equine influenza.]** — *Vet. Arhiv.* **26,** 16-20. [In Croat. English and French summaries] **2877**

Specific equine virus abortion antibodies were demonstrated by the complement-fixation reaction in the serum of 21 of 32 military horses with typical symptoms of influenza. Eleven yielded doubtful reactions. Of the remaining 293 apparently healthy horses of the same unit 3 yielded doubtful reactions.—E.G.

DOLL, E. R., MCCOLLUM, W. H., BRYANS, J. T. & CROWE, E. W. (1956). **Serological differentiation of the equine abortion virus from the human and swine influenza, mumps and Newcastle disease virus.**—*Amer. J. vet. Res.* **17,** 262-266. [Authors' summary modified.] **2878**

The possibility of serological relationship of the equine abortion virus to the influenza A, influenza B, influenza C, Sendai, swine influenza, mumps, and Newcastle disease viruses was studied by serum-virus neutralization, haemagglutination - inhibition and protective immunization techniques. Anti-abortion virus serum did not neutralize infectivity for chick embryos or inhibit agglutination of fowl r.b.c. by viruses of the mumps, Newcastle disease, and influenza group. Anti-mumps, Newcastle disease, and influenza virus serum did not neutralize infectivity of hamster-adapted equine abortion virus. Hamsters immunized against the mumps, Newcastle disease, and influenza viruses were not protected against the equine abortion virus. It is considered that equine abortion virus is serologically and immunologically distinct from the viruses of mumps, of Newcastle disease and of human and swine influenza. Differences in the host range and specific lesions are discussed.

MCKERCHER, D. G. & MOULTON, J. E. (1956). **Infectious bovine rhinotracheitis.** — *Calif. Vet.* **9,** No. 2. p. 23. **2879**

Previous attempts to transmit bovine infectious rhinotracheitis by means of blood and spleen from affected cattle had failed [see *V.B.* **26,** 1248]. In the present experiments it was transmitted by the intranasal instillation of nasal washings, treated with antibiotics, from affected cattle. Those which recovered from artificial infection by various field strains were immune to intranasal infection with homologous and heterologous strains.—R.M.

ROSENBERGER, G. (1955). Impfversuche gegen die Papillomatose des Rindes. **[Attempted immunization of cattle against papillomatosis.]** — *Dtsch. tierärztl. Wschr.* **62,** 442-445. **2880**

R. used eight cattle, 12–18 months old, two of which had recovered from natural, two from experimental infection, two in which the papillomata had been removed surgically, and two controls. All were infected by scarification with fresh papillomatous material, but only the controls developed the disease. In another series 13 young cattle were injected s/c twice at an interval of two weeks with 10 ml. formolized vaccine prepared from fresh papillomata. At intervals varying from 1–6 months after the second inj. they were challenged with virulent papilloma tissue and all except the controls remained healthy. The vaccine remained active for at least one year when stored at 4° to 6°C. but did not cure cattle already infected.—E.G.

VAN WAVEREN, G. M., BAKKER, S. & EISMA, W. A. (1956). Het rabbit adapted vaccin (Rav) in de strijd tegen de varkenspest. **[Rabbit-adapted virus vaccine in the control of swine fever.]**—*Tijdschr. Diergeneesk.* **81,** 297-306. [In Dutch. English, French and German summaries.] **2881**

A report of tests of lapinized swine fever virus of American origin, confirming its value for controlling an outbreak.—R.M.

FUCHS, F. (1955). Erfahrungen bei Herstellung und Prüfung der Riemser Kristall-Violett-Vakzine gegen Schweinepest. **[Preparation and testing of crystal violet vaccine against swine fever.]**—*Arch. exp. VetMed.* **9,** 618-632. **2882**

Experiences are described with the manufacture at Riems of crystal-violet swine fever vaccine of which 50 batches totalling 25,000

litres were prepared over a period of about 2 years, using virulent defibrinated blood of about 18,000 pigs. Details are given of testing of the vaccine in nearly 500 pigs. Breakdown of immunity was observed in 1·2%, short periods of fever in about 11% of the pigs.
—E.G.

Potel, K. (1955). Das histologische Verhalten des Zentralnervensystems bei Schweinen nach Impfung mit Kristallviolett-Vakzine. **[Histology of the central nervous system of pigs after inoculation of crystal violet vaccine.]**—*Arch. exp. VetMed.* **9**, 466-480. **2883**

Thirty-eight pigs aged 8 weeks were each given 2 s/c injections of 5 ml. crystal violet swine fever vaccine, with an interval of 14 days between injections. They were killed after varying intervals and the central nervous system was examined histologically. Changes in the c.n.s. were observed as early as 8 days after the last injection, but they were most pronounced after 21–28 days. The changes commenced as an increase in the number of cells of the endothelium and adventitia of small blood vessels, and they developed into a single or double layer of cells infiltrating the meninges or brain parenchyma. At the same time there was focal or slightly diffuse proliferation of glia in the vicinity of blood vessels. In various parts of the brain. In one pig there was lymphocytic meningitis in the cerebellum (without symptoms). In 14 piglets aged 3–4 weeks, similarly injected with vaccine, there were only slight indications of the above changes.

The c.n.s. of 15 pigs immunized by the simultaneous injection of virus and immune serum presented similar, but more pronounced changes, often amounting to encephalitis, 14–21 days after injection. For the purposes of comparison, the c.n.s. of 43 cases of swine fever was examined: 31 of them had meningoencephalitis, unaccompanied by symptoms during life. The basic change was, as in the vaccinated pigs, that of mobilization of the vascular system of the brain. P. concluded that the changes observed in the brain following the inoculation of crystal violet vaccine were due to the presence of traces of live virus in the vaccine.—R.M.

Matthias, D. & Schmidt, D. (1955). Die Viskosität des Blutplasmas bei gesunden und pestkranken Schweinen. **[Viscosity of blood plasma in healthy pigs and pigs with swine fever.]**—*Arch. exp. VetMed.* **9**, 534-540. **2884**

Plasma viscosity was studied in pigs of various ages in health and during infection with swine fever. Viscosity appeared to depend to a large extent on age, plasma from older pigs having higher viscosity values. Plasma from pigs with swine fever was of higher viscosity than that of healthy animals of the same age group.—E.G.

Gustafson, D. P. & Pomerat, C. M. (1956). **Cytopathic changes in tissue cultures derived from a pig infected with hog cholera.**—*Amer. J. vet. Res.* **17**, 165-173. [Authors' summary modified.] **2885**

Tissue cultures of 10 tissues involving 600 explants prepared from a pig 6 days after inoculation with swine fever virus were compared with similar cultures from a susceptible litter mate. In spleen cultures from the inoculated pigs significant changes were observed in the endothelial cells; there was increased granularity and vacuolization of the cytoplasm, and cinematographic records revealed markedly fewer lymphocytes. In the epithelial cells of the cultures of lung tissue there was some death of cells, reduced cytoplasm with increased vacuolization, and reduced nuclear size; however, cinematographic records of comparable cultures did not confirm these observations. There was difference in pH between cultures from the inoculated and uninoculated pigs. The virus presumed to be present had apparently only a relatively mild inhibiting effect on the gross growth characteristics of the cultures.

Sato, U. & Sugimura, K. (1955). **[Studies on the mixed infection of hog cholera. I. Isolation of *Bacterium pyosepticum* (*viscosum*).** —*Jap. J. vet. Sci.* **17**, 91-100. [In Japanese. Abst. from English summary.] **2886**

I. The organism [designated *Bact. pyosepticum (viscosum)*] was isolated from the lung, peritoneal and pericardial lesions in 68 out of 560 infected pigs after natural death or slaughter. It differed biochemically from *Bact. pyosepticum equi.* Three different colony types were observed. The lesions from which this organism was isolated were similar to those seen in *Pasteurella suiseptica* infection. —T.E.G.R.

Goldmann, G. & Pehl, K. -H. (1955). Über die Vermehrung des Schweinepestvirus in der Säuglingsmaus. **[Propagation of swine**

fever virus in young mice.]—*Arch. exp. VetMed.* **9**, 732-735. **2887**

Swine fever virus was passaged in unweaned mice, 4–10 days old, by i/p inj. of 0·05, 0·1 or 0·2 ml. of phosphate buffer-extracted virus material. The passages were carried out at 24-hour intervals and had reached the 57th at the time of writing. Swine pathogenicity tests were carried out with material of passages number 21, 30–39 and 50 and all pigs developed swine fever.—E.G.

Holz, K. (1955). Zur histologischen Differentialdiagnose der Gehirnentzündungen des Schweines. [**Histological differential diagnosis of encephalitis in swine.**]—*Zbl. VetMed.* **2**, 718-738. [English, French and Spanish summaries. English summary modified.] **2888**

Inflammatory changes in the central nervous system in swine fever are of special importance in differential diagnosis and must not be confused with chronic purulent encephalitis of which there are 5 forms:— (1) purulent local or diffuse lesions limited mainly to the meninges of the brain and spinal cord; (2) purulent diffuse lesions which, though mainly superficial, may also extend deeply into the plexus, ventricles, and central canal of the spinal cord; (3) occlusive hydrocephalus with ventricular dilatation; (4) ependymitis; (5) solitary or multiple abscess formation

Forms (2) and (5) show cellular reactions similar to those in swine fever and differential diagnosis requires the careful study of large sections of tissue. The encephalitis caused by salmonella is similar to that occurring in swine fever, but there are present clumps of bacteria and foci composed of mononuclear cells, lymphocytes, plasma cells, and microglia. Subependymal matrix foci, usually caused by errors in matrix development in the embryo, must not be confused with true inflammatory foci or with ependymitis.

Gasparini, G. & Nani, S. (1955). Ricerche sperimentali sul virus di Teschen. Prova di neutralizzazione sul suino con gamma globuline anti-Teschen. VI. [**Studies on the virus of Teschen disease. VI. Neutralization test in pigs using anti-Teschen gamma globulin.**] —*G. Microbiol.* **1**, 170-175. **2889**

The gamma globulins of hyperimmune serum were salted out and mixed with equal volumes of varying dilutions of virus. These mixtures were used for the subdural inoculation of pigs. Results indicated the presence of neutralizing antibodies.—T.E.G.R.

Hendrik, A. (1955). Versuche zur Frage einer Vitamin-D_2-Prophylaxe bei der Poliomyelitis suum. [**Value of vitamin D_2 in the prevention of Teschen disease.**] — *Arch. exp. VetMed.* **9**, 736-767. **2890**

The protective value of vitamin D_2 in Teschen disease was studied in 2 groups of 12 and 38 piglets, respectively. One week before infection 6 piglets of group one were given 1·5 ml. (600,000 i.u.) of a vitamin D_2 preparation s/c into the neck; the remaining 6 served as controls. Three of the treated piglets developed symptoms of Teschen disease, but this diagnosis was confirmed histologically in 2 only. Of the controls 4 succumbed to infection and 2 were resistant. Nineteen of group 2 received, 3 weeks before infection, 2 doses each of 600,000 i.u. of vitamin D_2; the remainder served as controls. All 38, however, developed Teschen disease. Details are given of histological examination, with photomicrographs. Calcium and phosphorus levels are recorded in tables.—E.G.

Brauner., Ursiny. & Žuffa. (1955). Erfahrungen bei der Immunprophylaxe der ansteckenden Schweinelähmung mit Pressburger Adsorbatvakzine und ein Vorschlag zur erfolgreichen Bekämpfung dieser Krankheit in der Tschechoslowakei. [**An adsorbate vaccine for control of Teschen disease in Czechoslovakia.**]—*Arch. exp. VetMed.* **9**, 522-533. **2891**

A German version of a paper by the same authors, previously abstracted [*V.B.* **25**, 2807]. —E.G.

Cilli, V. (1956). Le infezioni da virus pneumotropi del suino. [**Pneumotropic virus infections in pigs.**]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9**, 51-120. Discussion: pp. 120-123. [English and French summaries.] **2892**

This is a review of the literature. Summarizing the available information, C. classified swine pneumotropic virus infections into six groups, namely swine influenza, "Ferkelgrippe", virus pneumonia of pigs, swine fever, ornithosis (psittacosis), and infection by the virus of human influenza. He also discussed the question as to whether the swine influenza virus is a survival of the human influenza virus which caused the 1918 pandemic; but he came to no definite conclusion. In discussion on the paper Goret reported the finding of a pneumotropic virus infection in pigs in Morocco. This was discovered in association

with swine fever, and bore some resemblance to atypical virus pneumonia of man.

—I. W. JENNINGS.

REBER, E. F. (1956). **Airborne transmissible gastroenteritis.**—*Amer. J. vet. Res.* **17,** 194-195. [Author's summary modified.] **2893**

Transmissible gastro-enteritis of pigs (TGE) was air-borne for distances of 23 and 42 in. at air velocities of 15 and 52 cu. ft. per min. Infectious material apparently became air-borne on the appearance of vomitus or diarrhoea. Incubation periods for 4 to 6-day-old Hampshire pigs varied from 18 to 24 hours.

PRIER, J. E., WRIGHT, B. S. & KALTER, S. S. (1956). **Detection of complement-fixing antibodies for Carré's virus.**—*Science.* **123,** 586-587. **2894**

The authors describe a method for preparing complement-fixing antigen from distemper-infected chorioallantoic membrane of chick embryos. They demonstrated that 35% of human serum samples, collected from normal individuals taken at random, contained complement-fixing antibodies which reacted with this antigen preparation, while 45% of samples from dogs gave a positive reaction.

—W. MANSI.

KOBER, U. (1955). Beobachtungen über Epidemiologie und Klinik der "Hard pad disease" in Berlin. **[Epidemiology and symptoms of "hard pad" disease in Berlin.]** —*Arch. exp. VetMed.* **9,** 569-594. **2895**

K. described the epidemiology of hard pad disease in Berlin during 1949-55. Highest incidence was during 1952, after which there was a gradual decrease. At its peak the disease was diagnosed in about 30% of the dogs admitted for distemper to the veterinary clinic. The mortality rate decreased gradually from 100% to about 90%. Climatic conditions appeared to have had no effect on incidence. Details are given of the clinical picture in 198 dogs. The disease was accompanied by either catarrhal or nervous symptoms, in some by both. In others both catarrhal and nervous symptoms were absent. Treatment with antibiotics and sulphonamides was without success.—E.G.

MOULTON, J. E. (1956). **Fluorescent antibody studies of demyelination in canine distemper.** —*Proc. Soc. exp. Biol., N.Y.* **91,** 460-464. [Author's summary modified.] **2896**

Fluorescent antibody studies revealed that the virus of dog distemper was localized in astrocyte and possibly other glial nuclei. The astrocytes had degenerative changes consistent with viral invasion. Astrocyte involvement appeared to be followed by demyelination although this causative relationship could not be explained.

HAIG, D. A. (1956). **Canine distemper-immunisation with avianised virus.**—*Onderstepoort, J. vet. Res.* **27,** 19-53. **2897**

H. described the propagation of Green's distemperoid virus in developing chick embryos. Best multiplication took place after injection of eight-day-old embryos by the chorio-allantoic membrane route and incubation at 35°C. An inoculum with a high virus titre was satisfactory for maintaining the Onderstepoort strain in embryonated eggs. By the 130th egg-passage the degree of attenuation was such that the Onderstepoort virus could safely be used for the immunization of both dogs and ferrets. Immunity tests in ferrets and dogs vaccinated with the Onderstepoort virus, showed close immunological similarity between this strain and those obtained from encephalitic forms of distemper. Titration of viral activity in eggs, ferrets and dogs indicated that approx. 500 egg infective doses are required for the immunization of both ferrets and dogs. Immunization of dogs with Onderstepoort virus has been undertaken on a large scale and to date about 40,000 doses of vaccine have been used in Southern Africa, with satisfactory results.

KATZ, E. (1956). **The activity of tetracycline on feline pneumonitis virus infection of chick embryos.** — *J. infect. Dis.* **98,** 177-186. [Author's summary modified.] **2898**

Tetracycline and oxytetracycline showed equal activity which was higher than that of chlortetracycline in protecting chick embryos infected with feline pneumonitis virus. It was suggested that the greater instability of chlortetracycline *in vivo* may account for this difference. Tetracycline and oxytetracycline were as effective at 0·031 mg. per embryo as at much higher concentrations. Tetracycline protected infected embryos even when there was a considerable delay between the time of infection and administration of the drug: when administered 12–24 hours before the expected death of the embryo, the drug was still active.

Tetracycline was without activity on feline pneumonitis virus *in vitro,* and *in vivo*

it acted chiefly as a viristatic. Initial bodies and plaques were formed in the presence of the antibiotic, but subsequent multiplication of these bodies was inhibited to a considerable extent. Virus, once released from the presence of the antibiotic, was able to multiply freely once again and bring about the death of a susceptible host.

MYERS, K. (1955). **The ecology of the mosquito vectors of myxomatosis (*Culex annulirostris* Skuse and *Anopheles annulipes* Walk.) in the Eastern Riverina.** — *J. Aust. Inst. agric. Sci.* **21**, 250-253. **2899**

From a study of the incidence of myxomatosis in rabbits in relation to the feeding habits of the vectors, the abundance of mosquito larvae and pupae, the relative amounts of surface water and the rainfall, M. concluded that differences in disease activity from habitat to habitat and season to season reflected the different ways in which habitats and vectors respond to rain in season.

—R. I. SOMMERVILLE.

BAMBERGER, K. & ELEK, P. (1955). A baromfipestissel szemben immunis állatok felismerése teljesvérrel végzett hemagglutinációgátló próbával. **[A whole-blood haemagglutination-inhibition test for the demonstration of immunity to fowl plague (? Newcastle disease).]**—*Mag. állator. Lapja.* **10**, 415-417. [In Hungarian. English and Russian summaries.] **2900**

Details are given of examination of whole-blood samples from 710 fowls by the micro-haemagglutination-inhibition test. The test is stated to be fairly accurate and time-saving.—E.G.

WILLIAMSON, A. P., BLATTNER, R. J. & SIMONSEN, L. (1956). **Mechanism of the teratogenic action of Newcastle disease virus in the chick embryo.**—*J. Immunol.* **76**, 275-280. [Authors' summary modified.] **2901**

There was evidence that defects found in young chick embryos, after inoculation of allantoic fluid suspension of Newcastle disease virus, resulted from the presence of the fully infective virus and were probably due to the proliferation of the virus. Homologous immune globulin prevented the teratogenic action of the virus suspensions, and no teratogenic activity was found in suspensions from which the virus particles had been removed by ultracentrifugation. Virus inocula, inactivated by heat or ultraviolet irradiation, failed to produce defects. Inoculation of inactivated virus somewhat decreased the yield of abnormal embryos following subsequent inoculation of active virus. There was no conclusive evidence that the rate of multiplication in organs, showing characteristic defects, was greater than in tissues which appeared unaffected. It seemed clear, however, that virus proliferated in other tissues as well as those showing gross defects. Microscopic studies showed that dilute virus inocula produced characteristic cell damage of a relatively mild type in comparison to the gross defects following concentrated virus inocula, but that the organ specificity was the same.

I. MARUŠIĆ, Ž. (1955). Ekonomski značaj peradarstva i suzbijanje kokošje kuge na terenu sreza Bosanski Šamac. **[Control of Newcastle disease on poultry farms in Bosnia.]**—*Veterinaria, Sarajevo.* **4**, 451-457. [In Croat. English summary.] **2902**

II. ALEKSIĆ, F. (1955). Neka iskustva iz suzbijanja kuge peradi u srezu Derventa. **[Control of Newcastle disease in North Bosnia.]**—*Ibid.* 458-462. [In Croat. English summary.] **2903**

I. & II. Accounts of successful control of outbreaks of Newcastle disease, using Mukteswar vaccine.—E.G.

ŽUFFA, A., ŠKODA, R., KROŠLÁK, V., MICHÁLEK, K. & BAUMGÄRTNER, L. (1956). Výroba ochranného séra proti Newcastelskej chorobe hydiny a jeho vyhodnotenia na kurčatách. **[Production and evaluation of Newcastle disease serum.]**—*Vet. Čas.* **5**, 22-30. [In Slovak. German and Russian summaries.] **2904**

The authors described results obtained with Newcastle disease serum prepared from fowls and turkeys using Hertfordshire strain of virus. Subcutaneous injection of 0·5 ml. of serum immunized 300 susceptible chicks weighing up to 400 g. against simultaneous s/c challenge with 10 million LD_{50} of virus.

—E.G.

MAJEWSKA, H. & ZEBROWSKI, L. (1955). Wpływ pasaży na zarodkach kurzych na wartość antygenową wirusa Hertfordshire. **[Effect of chick embryo passage on the antigenic properties of Hertfordshire virus.]** — *Roczn. Nauk. rol.* Ser. E. **67**, 277-283. [In Polish. English and Russian summaries.] **2905**

Thirty-one passages of a vaccine strain of Newcastle disease virus were made using 11-

day-old chick embryos and at least 20 eggs in each passage. With increase in the number of passages the following changes were noted:— (1) Increased haemagglutination titre of the allantoic fluid, increased number of petechiae on the surface of the embryonic body and 50% decrease in L.D. titre. (2) Sera from birds inoculated with 21st or 31st passage virus had higher haemagglutination-inhibition and neutralization titres than sera from those inoculated with 1st or 11th passage virus.—M. GITTER.

SCHMIDT, U. & SCHMIDT, D. (1955). Über die Beziehungen der hämagglutinationshemmenden Antikörper zur Immunität nach Vakzinierung gegen Geflügelpest. [**Connexion between haemagglutination-inhibiting antibodies and immunity after vaccination against Newcastle disease.**]—*Arch. exp. VetMed.* **9,** 505-516. **2906**

The relationship between haemagglutination-inhibition (H.I.) titre and immunity following vaccination against Newcastle disease was studied in 311 fowls for periods of up to 10 months after vaccination. When the titre was determined, they were infected experimentally. Mortality in those with titres up to 1 : 16 varied from about 95% to about 8·5%. Those with titres of 1 : 32 and over resisted infection. The value of the H.I. reaction in the evaluation of vaccines without loss of life and for the estimation of the duration of immunity is discussed.—E.G.

GORET, P. & BRION, A. (1955). Les infections animales du groupe ornithose—psittacose. (Chlamydozooses.) [**Infections with viruses of the psittacosis-lymphogranuloma group in animals.**] — *Bull. Off. int. Epiz.* **43,** 1020-1051. **2907**

The authors proposed a classification of diseases of animals caused by rickettsia and viruses of the psittacosis - lymphogranuloma group, referring to the latter as chlamydozoon infections or "chlamydozooses". There is a brief account of each of 21 diseases allocated to this group.—R.M.

BABUDIERI, B., D'AMORE, A. & MOSCOVICI, C. (1956). Anticorpi per i virus del gruppo psittacosilinfogranuloma venereo, nel siero di bovini italiani. [**Antibodies against viruses of the psittacosis-lymphogranuloma group in the serum of cattle in Italy.**]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 665-667. Discussion: pp. 667-668. [English and German summaries.] **2908**

Complement-fixation tests on some 200 cattle, obtained at random from the Rome abattoir, revealed 36 positive reactors, in titres ranging from 1 : 4 to 1 : 512. It is supposed, therefore, that in Italy there is an infection caused by a virus belonging to the psittacosis-lymphogranuloma group, possibly resembling the sporadic encephalomyelitis of cattle in the U.S.A. In discussion on the paper, it was pointed out that non-specific reactions to the c.f. test are common in the psittacosis group, even at high titres, and that diagnosis must depend on isolation of the virus concerned.
—I. W. JENNINGS.

BENEDICT, A. A. & O'BRIEN, E. (1956). **Antigenic studies on the psittacosis-lymphogranuloma venereum group of viruses. II. Characterization of complement-fixing antigens extracted with sodium lauryl sulfate.** — *J. Immunol.* **76,** 293-300. [Authors' summary slightly modified.] **2909**

A water-soluble group complement-fixing antigen was efficiently extracted with sodium lauryl sulphate from purified suspensions of psittacosis, feline pneumonitis, and meningopneumonitis viruses. Partial purification was effected by repeated acid precipitation at pH 4·0 to 4·5 which yielded a heat-stable nucleic acid-free antigen composed of protein, carbohydrate and lipid. Treatment of this complex with 5% phenol produced a periodate-sensitive, phenol - insoluble, complement - fixing antigen and a periodate-resistant, phenol-soluble antigen. The phenol precipitate was mainly a lipo-carbohydrate and the phenol supernatant fraction was chiefly protein.

GORET, P. (1955). Aperçu sur les maladies animales à ultravirus transmissibles à l'homme. [**Virus diseases of animals transmissible to man.**]—*Maroc méd.* **34,** 925-932. **2910**

This is a brief discussion of virus diseases of animals which are transmissible to man. The conditions dealt with include the pox diseases, F. & M. disease, contagious ecthyma and various stomatites, rabies, Aujeszky's disease, various seasonal encephalitides, louping-ill, Rift valley fever, equine infectious anaemia, and Newcastle disease.—T.E.G.R.

MCLEAN, D. M. (1955). **Multiplication of viruses in mosquitoes following feeding and injection into the body cavity.**—*Aust. J. exp. Biol. med. Sci.* **33,** 53-65. **2911**

Murray Valley encephalitis (MVE) virus multiplied in *Culex annulirostris* and *Aedes*

queenslandi after infection by feeding or by injection into the body cavity. After a latent period the mosquitoes were infective for fowls for 3–28 days. MVE virus multiplied in *Anopheles annulipes* when infected by injection but not after infection by feeding. CF_5 virus [probably a bird-pox virus] multiplied little, if at all, when fed to *C. annulirostris* or *A. queenslandi*, but after injection multiplied in both these species and in *A. annulipes*. Influenza A, neurovaccinia, and herpes simplex viruses all failed to grow in the mosquitoes tested when infection was attempted either by injection or by feeding.

—J. H. Whittem.

Crick, F. H. C. & Watson, J. D. (1956). **Structure of small viruses.**—*Nature, Lond.* **177,** 473-475. **2912**

Almost all small viruses are either rods or spheres. The rod-shaped tobacco mosaic virus has a length close to 3,000 Å and a diameter of about 170 Å. X-ray observation has shown that the protein part of the virus is made up of sub-units arranged in helical formation about the central axis. Crystallographic evidence of the spherical bushy stunt virus and the turnip yellow mosaic virus indicates that they crystallize in a single unit cell which has the shape of a cube. It is likely that this cubic symmetry is built up from sub-units. Geometrical considerations lead to the supposition that they are assembled in a very limited possible number of ways, and probably in multiples of 12. There is no X-ray evidence available for the structure of animal viruses, but smaller animal viruses such as poliomyelitis and the encephalitic viruses are morphologically very similar to the spherical plant viruses.

From the above considerations, the authors advance the hypothesis that the basic structural requirement for a small virus is the provision of a shell of protein to protect its highly specific packet of ribonucleic acid. This shell is necessarily rather large, and the virus, when in the cell, finds it easier to control the production of a large number of identical small protein molecules rather than that of one or two very large molecules to act as its shell. These small protein molecules than aggregate around the ribonucleic acid in a regular manner, which they can do in a limited number of ways if they are to use the same packing arrangement repeatedly.

—E.V.L.

Gmitter, J. (1956). Najnovšie poznatky výskumu Q horúčky v SSSR. [**Q fever in the U.S.S.R.**]—*Vet. Čas.* **5,** 49-58. [In Slovak. German and Russian summaries] **2913**

G. reviewed Russian work on the epidemiology, prophylaxis and diagnosis of Q fever. Although incidence was highest in abattoir and meat industry personnel, an outbreak among carpet factory workers is mentioned. Papers reviewed deal with the role of ticks, work on allergic skin tests, vaccination and treatment with antibiotics.—E.G.

Colter, J. S., Brown, R. A., Bird, H. H. & Cox, H. R. (1956). **The preparation of a soluble immunizing antigen from Q-fever rickettsiae.** — *J. Immunol.* **76,** 270-274. [Authors' summary modified.] **2914**

An account of the preparation of purified suspensions of *R. burneti* by differential centrifugation using washed celite, and centrifugation through 8% KCl solution. The purification was accomplished without any significant loss of rickettsia as judged by estimations of infectious titre. A soluble antigen was separated from suspensions of purified rickettsia by means of ultrasonic vibration. The antigen solutions were able to elicit antibody production in g. pigs, and to afford at least partial protection against challenge with viable rickettsia.

See also absts. **2919** (swine fever vaccination); **2981** (F. & M. disease, Teschen disease); **2982** (encephalitis in horses); **3046** (book, virology).

IMMUNITY

Thorbecke, G. J. & Keuning, F. J. (1956). **Antibody and gamma globulin formation *in vitro* in hemopoietic organs.**—*J. infect. Dis.* **98,** 157-171. [Authors' summary modified.] **2915**

The authors examined the histology of haemopoietic organs during the process of antibody formation *in vitro*. The localization of plasma cells was found to be mainly perivascular, particularly in the spleen, and/or in the vicinity of lymphoid tissue. Antibody production *in vitro* in liver tissue was correlated with proliferation of plasma cells in the periportal connective tissue.

After immunization, a close parallelism could be demonstrated between the formation

of antibodies and of gamma globulin *in vitro* in various organs, particularly in bone marrow and splenic red pulp. There was no significant gamma globulin formation in organs of non-immunized rabbits, nor in the organs of animals that had been subjected to plasmapheresis. They discussed the absence of the formation of both plasma cells and gamma globulin before birth (experiments on this subject are briefly mentioned) and advanced the hypothesis that all gamma globulins in the blood plasma are antibodies.

CONDIE, R. M. & GOOD, R. A. (1956). **Inhibition of immunological enhancement by endotoxin in refractory rabbits. Immunochemical study.**—*Proc. Soc. exp. Biol., N.Y.* **91,** 414-418. [Authors' summary and conclusion modified.] **2916**

Inhibition of the adjuvant effect of endotoxin by development of refractoriness to the "toxic" properties of endotoxin was demonstrated. The basis for enhancement of immune body formation by endotoxin is discussed.

MILLOT, P. & EYQUEM, A. (1955/56). Les groupes sanguins des moutons. **[The blood groups of the sheep.]**—*Rev. Path. gen.* **55,** 1245-1259; **56,** 1393-1426 & 41-65. [English, German and Italian summaries.] **2917**

After reviewing the literature, the authors describe their methods of iso-immunization of sheep and preservation of blood samples; and their techniques of absorption, agglutination and haemolysis (the last being effected by adding g. pig complement to tubes after reading for agglutination). They found that haemolysis and agglutination were not always coincident, that because of variations in agglutinability of cell samples of similar specificity it was often necessary to confirm the identification of the antigen by absorption techniques, and that the incidence of the antigens described and of natural agglutinins varied between breeds.

A testing panel of 66 cell samples, derived from 6 different breeds, was used to examine sera produced by iso-immunization of sheep and by hetero-immunization of goats with sheep red cells. Anti-A was the commonest natural agglutinin. The A antigen (like D and E) was common in the Southdown and rare in the Préalpes du Sud breed; the converse was true of the B antigen which showed two forms (related to each other as are the human A_1 and A_2 blood groups). Antigens, which the authors called C, E, F, G and H, were revealed by iso-immunization, and D by hetero-immunization. Haemolysis revealed antigens distinct from those found by agglutination; they were labelled D, H, I, J, K, only the last being recognized by both haemolysis and agglutination. Pure antisera against all these antigens were obtained by suitable absorptions, anti-H proving unstable.

Some preliminary genetical evidence presented suggests that blood group inheritence is consistent with that in man. Much of the evidence is presented in tables.

—G. FULTON ROBERTS.

MILLOT, P. & EYQUEM, A. (1956). Individualisation de 10 antigènes érythrocytaires chez les chèvres au moyen d'iso-immunsérums de mouton. **[Identification of 10 erythrocytic antigens in goats by means of sheep iso-immune sera.]**—*Ann. Inst. Pasteur.* **90,** 333-338. [English summary.] **2918**

R.b.c. from 27 goats were examined with sheep iso-agglutinins (determining the sheep antigens A, B, C, E, and G) and sheep iso-lysins (determining the sheep antigens D, H, I, J, K). No goat antigen was recognized by the use of antisera against B, C, D, H or I. All the goat samples reacted with anti-E and anti-J. One sample was agglutinated by anti-G and several were haemolysed by anti-K. The use of anti-A revealed a goat cell antigen distinct from the A antigen in sheep. By the use of additional sera containing a mixture of antibodies, the antigens M, N, O, P, and Q were demonstrable in certain samples of goat cells.—G. FULTON ROBERTS.

GOODWIN, R. F. W. & SAISON, R. (1956). **The blood groups of the pig. III. A breed difference in iso-antibody response after vaccination with crystal violet swine fever vaccine.** —*J. comp. Path.* **66,** 163-178. [Authors' conclusions modified.] **2919**

Iso-antibodies, often at a high titre, were present in 92 out of 97 Essex/Wessex sows, which had been vaccinated at least twice with crystal violet vaccine. In a comparable sample of 69 Large White sows, iso-antibodies were present in only 26. The red cells used for testing were those of local, mainly Large White boars. The red cells of alternative breeding boars (Large White), titrated against the sera of Essex/Wessex sows in the same herd, gave similar titres for each serum, regardless of whether the serum was from a sow that had lost piglets with haemolytic disease or not. This similarity in antigenic structure

was also observed when the sera of 2 sows whose litters had developed acute haemolytic disease were each titrated against the cells of 20 Large White boars. The theoretical and practical applications of these findings are discussed.

SZABÓ, I., SZENT IVÁNYI, T. & SZÉKY, A. (1956). Az újszülött malacok haemolyticus sárgasága. [**Haemolytic disease in new-born piglets.**]—*Mag. állator. Lapja.* **11**, 75-80. [In Hungarian. English and Russian summaries. Abst. from summaries.] **2920**

The authors described clinical and pathological features and serological diagnosis of haemolytic disease in piglets. Of 60 cases encountered 7 were of purebred, 53 of crossbred stock, 42 of which were offspring of Berkshire sires and Mangalitsa dams. Mortality was about 90%. Generally more than one iso-antigen took part in the process of isoimmunization of the dam. It was not always possible to predict with reasonable certainty the birth of offspring with haemolytic disease. In some cases repetition could be prevented by changing the sire.—E.G.

ANON. (1956). **Immunological tolerance. A discussion at the Royal Society.**—*Brit. med. J.* March 31st. 740-742. **2921**

In adults, antigens evoke one of the recognized forms of immune response; the administration of antigens to embryos or to the new-born does not evoke an immune response and may permanently and specifically inhibit the immune response thereafter: a condition called immune tolerance. Tolerance may result from the use of red cell or tissue antigens and is a failure of the immune mechanism distinct from immunological paralysis (due to persistence of antigen in the host). Immune tolerance explains "horror autotoxicus" though some substances (*e.g.* milk protein and spermatozoa), being developed after the animal has become immunologically mature, are capable of inducing autoantibody formation. The time of immunological maturity varies with the species and the immune system.

An immune tolerance similar to that of twin calves to each other's cells, which results from the sharing of the placental circulation, can be produced experimentally in young rats after birth. A rhesus-negative mother whose own mother was Rh-positive may, it is suggested, be more tolerant of a Rh-positive infant than is one whose own mother was Rh-negative.

The elimination of labelled human albumin injected into rabbits, 2–4 months old, that had received this antigen shortly after birth, was studied and compared with a control series not so treated. In both groups the first phase of antigen elimination (10 min. after injection) concerned with re-distribution of antigen throughout the body, and the second phase (at 60 hours) due to normal catabolism, were equal. The third phase (at 180 hours) due to antibody formation, was slower in the test group.

Tolerance to the Rous sarcoma can be induced in turkeys by injecting them when day-old with infected fowl blood.

—G. FULTON ROBERTS.

See also abstr. **2772** (allergic reactions in bovine TB.); **2773-2775** (tuberculin tests in cattle); **2784** (swine erysipelas vaccine); **2793** (serum plate test in S. pullorum infection); **2801** (Br. melitensis vaccine); **2812** (antigenic properties of Cl. welchii); **2816-2817** (vaccination against tetanus); **2826** (immunity of rabbits to C. albicans); **2833** (c.f. test in caprine contagious pleuro-pneumonia; vaccines); **2845-2846** (trichomoniasis); **2857** (F. & M. disease); **2862-2863** (rabies vaccines); **2868-2874** (c.f. test for equine infectious anaemia); **2875** (c.f. test in equine virus abortion); **2876** (haemagglutination in equine virus abortion); **2877-2878** (relationship between equine virus abortion and other viruses); **2880** (vaccine, papillomatosis in cattle); **2881-1883** (swine fever vaccines); **2889** (neutralization test, Teschen disease); **2894** (c.f. antibodies, distemper); **2897** (immunization against distemper); **2900** (H.I. test for Newcastle disease); **2905-2906** (Newcastle disease); **2908-2909** (c.f. antibodies, psittacosis-lymphogranuloma virus); **2914** (Q-fever antigen); **2937-2938** (ancylostomiasis); **3047** (book, immunology and serology).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

GRESSETTE, F. R., JR. & GOODWIN, W. J. (1956). **Cattle louse control with treated rubbing devices and their distribution in South Carolina.**—*J. econ. Ent.* **49**, 236-239. **2922**

Three forms of rubbing devices of the type giving self treatment, utilizing the animal's natural inclination to rub, were used to control louse infestations on cattle. Of a number of agents used including lindane 0·5% and D.D.T. 5% all gave good control of all four species of lice (the same as those found in Great Britain). Best results were obtained when the devices were treated from early autumn to early spring. This method was cheaper, caused less excitement to the cattle and required less labour than conventional control methods.—W. E. PARISH.

MURRAY, M. D. (1955). **Oviposition in lice, with reference to *Damalinia ovis*.**—*Aust. vet. J.* **31**, 320-321. **2923**

A brief summary of work to be published in full elsewhere. The oviposition behaviour pattern of *Damalinia ovis* and *D. equi is* described. There exist two critical factors: to lay an egg the louse must be in a suitable temperature zone, and a fibre of suitable diameter must be present to provide a touch stimulus for oviposition. An example of the ecological implications of these factors is given.

Du Toit, R. & Fiedler, O. G. H. (1956). **A new method of treatment for sheep infested with the larvae of the sheep nasal-fly, *Oestrus ovis*. L. in the Union of South Africa.**—*Onderstepoort J. vet. Res.* **27,** 67-75. **2924**

The authors discussed the distribution of *Oe. ovis* in the Union of South Africa. The incidence was highest between October and January. The only means of control appeared to be the destruction of the larvae in the nasal cavity and sinuses of sheep. As the usual remedies failed to penetrate the mucus blocking the openings to the sinuses, a potent larvicide (BHC) was incorporated in fairly high concentration in a base capable of emulsification in the serous secretions covering the mucous membranes. They gave the formula of such a preparation containing 4% BHC and described the method of administration. Extensive trials in the field indicated very satisfactory control; only 3–6% of infested sheep required re-treatment. To eliminate the parasite three treatments were applied at intervals of 3–4 weeks. Lambs of up to 20 lb. body wt. should not be treated because of a possibility of BHC intoxication. It was inadvisable to treat ewes suckling lambs, or the lambs themselves, as the remedy interfered with their sense of smell.

Fiedler, O. G. H. & Du Toit, R. (1956). **The protection of sheep against blowfly strike. IV. An evaluation of certain organic phosphorus compounds.**—*Onderstepoort J. vet. Res.* **27,** 77-81. **2925**

The larvicidal properties of parathion, "EPN 300", malathion, diazinon, "Bayer L 13/59", and "Bayer 21/199" were determined. The minimum concentrations of insecticide in the nutritional medium required to kill newly hatched larvae of *Lucilia cuprina* within 72 hours was 0·25 p.p.m. for parathion, "EPN 300", diazinon, and "Bayer 21/199", 1 p.p.m. for "Bayer L 13/59", and 64 p.p.m. for malathion. The value of the phosphorus compounds as larvicides in the wool of living sheep and their diffusibility along the fibres were determined by saturating areas on the rump with a suspension containing 0·5% of the active principle. The average period of protection was 51 weeks for diazinon, 48·8 for parathion, 40·3 for "EPN 300", 23·2 for "Bayer 21/199", 16·2 for malathion, and less than 9 weeks for "Bayer L 13/59". The only phosphorus insecticide to comply with all requirements of a protecting agent against blowfly strike was diazinon, since parathion and "EPN 300" were too toxic to sheep and tended to discolour the wool. In its larvicidal action as well as its diffusibility in the fleece, it was superior to dieldrin and B.H.C.

Chereshnev, N. A. (1954). **[Stomatitis caused by *Gasterophilus pecorum* in horses.]**—*Trud. Inst. Vet., Alma-Ata.* **6,** 379-396. [In Russian.] **2926**

An epidemic of *G. pecorum* infestation of the oral cavity of horses and donkeys commenced during the winter of 1946–47 in Southern Kazakhstan and 160 horses died or had to be slaughtered. There were 51 deaths in 1948, 237 in 1949, 93 in 1950, and 10 in 1951. C. described in some detail the life-cycle of the parasite and the symptoms, pathology, treatment and control of the disease, on the basis of experience gained during the epidemic. The commonest number of larvae attached to the soft palate and base of the tongue of affected horses was 100–250, but counts of 300–500 were not rare. As a control measure, a change of pasture for horses and donkeys once every 15 days during the period August–October was recommended. This was adopted during the summer of 1951: out of 350 horses examined during December of the same year, only one or two larvae were seen in 15 of them.—R.M.

Mačička, O. & Rosický, B. (1956). O umiestnení cicajúcich kliešťov na pasených domácich zvieratách. **[Favourite sites of attachment of various species of ticks on grazing domestic animals.]**—*Vet. Čas.* **5,** 111-122. [In Slovak. German and Russian summaries.] **2927**

Ixodes ricinus, Dermacentor marginatus, D. pictus, Haemaphysalis punctata, H. concinna and *H. inermis* each have predilection sites of attachment to the host. This is an important factor in tick control. There are line drawings of horses, cattle, sheep and goats, and tables and photographs showing the favourite places of attachment.—E.G.

ORLOV, P. V. (1956). **[Control of psoroptic mange in cattle.]** — *Veterinariya, Moscow.* **33,** No. 3. pp. 45-50. [In Russian.] **2928**

Cattle with psoroptic mange were dressed once, in spring, with a 1% solution of BHC in cod-liver oil. After 4–5 days the whole herd was dressed with 0·25–0·5% BHC in a creolin-soap emulsion. A district of the Stavropol region became free from the disease after this treatment, whereas during the previous year, when treatment with BHC emulsion alone was practised, there were 1,182 cases.—R.M.

FLYNN, R. J. & JAROSLOW, B. N. (1956). **Nidification of a mite (*Psorergates simplex* Tyrrell, 1883: Myobiidae) in the skin of mice.**—*J. Parasit.* **42,** 49-52. [Authors' summary copied *verbatim*.] **2929**

Nest formation by *Psorergates simplex* in the skin of mice is apparently initiated by the entry into a hair follicle of one or more individuals. The resultant pouch is an invagination of the skin lined with epidermis and opening to the outside. It contains several generations of mites in all stages of development. The growth of the pouch does not usually incite an immune response, but when it does, the nest becomes encysted and invaded by inflammatory exudate.

SVETLIČIĆ, B. (1956). Invazija kokoši grinjom *Megninia cubitalis* i rezultati liječenja lindanom. **[Lindane (benzene hexachloride) against *Megninia cubitalis* infestation in poultry.]**—*Vet. Arhiv.* **26,** 33-38. [In Croat. English and German summaries.] **2930**

M. cubitalis, causing loss of feathers on the back, head and ventral part of the neck, but apparently no itching, in about 15% of a flock of fowls, was successfully eradicated by repeated dusting with either 0·5 or 0·1% of lindane in powder form, three applications of the 0·1% preparation usually being sufficient. —E.G.

See also absts. **2804** (tick vectors of Br. tularensis); **2899** (mosquito vectors of myxomatosis); **2911** (Murray Valley encephalitis); **2948** (Culex and Aedes, intermediate hosts of Setaria); **3048** (book, parasitology); **3049** (book, applied entomology).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

RIGGIN, G. T., JR. & BERRIOS, L. A. (1956). **The pig as a host of *Schistosoma mansoni* in Puerto Rico.**—*J. Parasit.* **42,** 10. **2931**

Because pigs in Puerto Rico are often kept in close proximity to streams in which there are colonies of *Australorbis glabratus* harbouring cercariae of *S. mansoni,* the authors studied the course of artificial infection in 2 young pigs and examined microscopically tissues from slaughtered pigs. They concluded that, although it was possible for the worms to reach maturity in the pig, very few viable eggs were produced; it was unlikely that pigs were of importance in the transmission of the parasite to human beings. —R.M.

SPREHN, C. (1956). Die Wirkung kleiner Phenothiazin-Gaben in Form eines Leck-steines bei Trichostrongyliden-Befall der Wiederkäuer. **[Effect of small doses of phenothiazine administered in the form of a lick in trichostrongylosis of goats.]** — *Tierärztl. Umsch.* **11,** 3-5. **2932**

Faecal examinations of 8 seven-month-old goats and a yearling having a natural infestation with *Haemonchus, Ostertagia,* and to a lesser extent *Trichostrongylus* spp. were made during winter. Although the egg counts dropped in all except one of three untreated control goats, the decrease was particularly marked in those receiving a 10% phenothiazine lick, and less so in two goats given a 5% phenothiazine lick. The results with the higher concentration corresponded whether the straw litter was changed fortnightly or was not renewed, but merely turned and dried, throughout the 4-month period.—M. L. CLARKE.

THRELKELD, W. L., PRICE, N. O. & LINKOUS, W. N. (1956). **An observation on the relationship of cobalt deficiency to internal parasites of sheep.**—*Amer. J. vet. Res.* **17,** 246-251. [Abst. from authors' summary.] **2933**

Infestation with *Haemonchus contortus* was heavier and the worms were longer in lambs receiving cobalt than in those on a cobalt-deficient diet.

I. WINTERHALTER, M. & DELAK, M. (1955). Parenteralna aplikacija tetraklormetana (carbonei tetrachloridum). III. Supkutana aplikacij tetraklormetana kod ovaca. **[Parenteral application of carbon tetrachloride. III. Subcutaneous application in sheep.]**—*Vet. Arhiv.* **25,** 68-74. [In Croat. English and German summaries.] **2934**

II. SLANINA, L., POPLUHÁR, L. & VRZGULA, L. (1955). K terapii fasciolózy oviec, kôz a

hovädzieho dobytka. [**Treatment of fascioliasis in ruminants by subcutaneous injection of carbon tetrachloride.**]—*Sborn. čes. Akad. zeměděls k. Věd., Živoč. Výr.* **28,** 923-940. [In Slovak. English, German and Russian summaries.] **2935**

I. The toxic effect was studied of a mixture of three parts of carbon tetrachloride and one part of liquid paraffin, administered s/c inside the hind leg in doses of 5 ml. in 27 sheep. Degenerative changes were observed in the liver cells, particularly on the third day after application. On the fourth day, however, there was vigorous regeneration of cells from the peripheral parts of the lobules, but effects were still visible in those slaughtered on the sixth day after application.

The anthelmintic effect against liver fluke was studied in 10 ewes, most of which were pregnant. Faecal examinations were carried out before and after treatment. They were killed on the third or the fourth day after application. In the bile ducts there were dead flukes in a state of decomposition. Neither meat nor organs were tainted by the specific odour of the drug. It is stated that the sheep behaved normally.

II. An account of treatment of fascioliasis in sheep, goats and cattle by oral and s/c administration of carbon tetrachloride. Orally the drug was administered together with linseed gruel, calcium and magnesium sulphate.

Field experiments were carried out in 620 sheep, 10 goats and 25 cattle. Sheep and goats were given a single inj. of 2–3 ml. under the skin of the neck. On the day of treatment the sheep were given 20–25 g. of magnesium sulphate with their food. Following injection there was excitement, giving way to apathy and inappetence, but within 4 days appetite was again normal. Six of the sheep died and of 36 pregnant ewes 3 aborted. Local swellings at the site of inj. disappeared within 4 days. Faeces were examined at intervals after treatment and a marked reduction in the number of *Fasciola* eggs found. None were demonstrable 64 days after treatment. In goats post-injection excitement was even more marked. Two of the goats were pregnant but none aborted.

The cows, 2 of which were pregnant, were given a dose of 10–20 ml. of carbon tetrachoride. Immediately after injection there was marked excitement and unrest lasting about 8 min. Appetite and temperature remained normal. There were no abortions. When the dose was given in one single inj., it produced a large, painful local swelling, but, when divided into four injections at different sites, local reactions were smaller and disappeared within 2 weeks. After 20 days the number of fluke eggs in the faeces was negligible.

—E.G.

Bell, R. R. (1956). **Continuous phenothiazine therapy of dogs artificially infected with *Ancylostoma caninum*.**—*Amer. J. vet. Res.* **17,** 279-282. [Author's summary modified.] **2936**

Phenothiazine in daily doses, up to 66 mg. per kg. body wt., for 60 days produced no signs of toxicity. Of 18 dogs artificially infected with *A. caninum,* 14 were fed phenothiazine daily in varying doses and 4 served as controls. The treated dogs showed a reduction in the ova count of the faeces; few ova that developed into viable larvae; and a reduction in the number of larvae that developed to adults. In animals receiving 33 mg. or less of phenothiazine/kg. body wt. there was an inverse correlation between the amount of phenothiazine given, the production of ova, and the viability of those ova.

I. Thorson, R. E. (1956). **Proteolytic activity in extracts of the esophagus of adults of *Ancylostoma caninum* and the effect of immune serum on this activity.**—*J. Parasit.* **42,** 21-25. **2937**

II. Thorson, R. E. (1956). **The effect of extracts of the amphidial glands, excretory glands, and esophagus of adults of *Ancylostoma caninum* on the coagulation of dog's blood.**—*Ibid.* 26-30. **2938**

I. Extracts of the oesophagus of adult *A. caninum* had a proteolytic action on casein at pH 6. Serum from a dog which was refractory to further infection with the nematode inhibited this proteolytic action.

II. T. was unable to demonstrate the presence of an anti-coagulant in extracts of the oesophagus, excretory glands, or amphidial glands of *A. caninum.* Extracts of amphidial glands increased the prothrombin time of the blood of dogs from 7·5 sec. (normal) to 16·6 sec.—R.M.

Michel, J. F. & Mackenzie, R. E. (1956). **An experimental study of certain aspects of the epidemiology of parasitic bronchitis in adult cattle.**—*Emp. J. exp. Agric.* **24,** 61-74. [Abst. from authors' summary.] **2939**

The epidemiology of the disease was

studied in cattle aged 6–30 months under conditions of set stocking, rotational grazing, understocking and overstocking. Infestation did not exceed a certain level either in the animals or on the herbage. On the basis of larval counts in the faeces, it is argued that infestation in the experimental animals was entirely from larvae passed by the carrier calves and that the uptake of larvae passed by the experimental animals themselves did not increase infestation. It is considered that animals acquire resistance and outbreaks in older cattle are due to sudden exposure to heavy infestation of pasture.

KAZANSKI, S. I. (1956). [**Early anthelmintic treatment of calves with *Dictyocaulus*.**].—*Veterinariya, Moscow.* **33,** No. 4. pp. 30-31. [In Russian.] **2940**

In the Kalinin region during 1951 *Dictyocaulus* infestation was diagnosed on 1,642 farms and affected 31,115 calves, of which 2,428 died. At that time routine anthelmintic treatment was carried out in August or September, when affected calves began to show symptoms. Better results were obtained when, in combination with other control measures, calves were treated at the beginning of July. Treatment was repeated at intervals of 3–4 weeks until there were no larvae in the faeces. During 1955 only 53 farms were affected, and there were 719 cases, 56 of them fatal. [Details of anthelmintic treatment are not given.]—R.M.

STEFAŃSKI, W. (1955). Badania nad leczeniem robaczycy płucnej owiec. I. Leczenie płynem Lugola. [**Treatment of lungworm infestation in sheep. I. Lugol's solution.**] *Roczn. Nauk. rol.* Ser. E. **67,** 201-221. [In Polish. English and Russian summaries.] **2941**

[See also *V.B.* **26,** 1683.] As a result of experimental intratracheal injections with modified Lugol's iodine S. concluded that although sheep may tolerate quite large doses, the administration of more than 10–15 ml. is not justified. He considered that the clinical improvement noted (in 24–72% of sheep treated) was due to the stimulating effect of iodine rather than to its parasiticidal action.

—M. GITTER.

KALBE, I. (1955). Untersuchungen über die Entwicklungsfähigkeit der Eier von Ascaris lumbricoides L. und Parascaris equorum Goeze nach Abwasseraufenthalt und unter andern biologischen Bedingungen. [**Viability of the eggs of *Ascaris lumbricoides* and *Ascaris equorum* after submersion in sewage and under other biological conditions.**]—*Arch. exp. VetMed.* **9,** 557-568. **2942**

Submersion in waste water or sludge for varying periods killed or inhibited development of only a proportion of ascaris eggs. Survival rate was higher in embryonated than in non-embryonated eggs. Mortality of *A. lumbricoides* eggs was higher than that of *A. equorum* eggs. When exposure time of *A. equorum* eggs to 4°C. was increased, mortality rate increased accordingly. Non-embryonated eggs of *A. equorum* were killed within 6 days when exposed to uninterrupted temperatures of −4°C. and within 7 days when freezing was interrupted daily. Some embryonated eggs survived for about 20 days. Eggs which had begun embryonating after submersion in sewage remained infective, whereas already embryonated eggs were not infective once frozen.—E.G.

EGYED, M. & HOLLÓ, F. (1956). A toluol és a "Gastin" orsóféregellenes hatásának vizsgálata. [**Treatment of *Ascaris* infestation in foals with toluene.**] *Mag. állator. Lapja.* **11,** 115-119. [In Hungarian. English and Russian summaries.] **2943**

Doses of 20–40 ml./100 kg. body wt., of toluene, depending on whether administered on an empty stomach or not, were given to 30 *Ascaris*-infested foals up to one year of age. Faeces of 26 of the foals were free from ova 10–12 days after treatment. In tests 20–25 days after treatment, 23 of 24 faecal samples were free from ova. The drug was well tolerated. Its efficacy was also tested in 5 dogs and *in vitro*.—E.G.

TURK, R. D. & HALE, F. (1956). **Observations on ascaricides in swine.**—*J. Amer. vet. med. Ass.* **128,** 405-407. [Authors' summary modified.] **2944**

Sodium fluoride evacuated more adult ascarids from pigs than did either cadmium oxide or cadmium anthranilate. However, weight losses during treatment were greater with sodium fluoride.

HANSEN, M. F., TERHAAR, C. J. & TURNER, D. S. (1956). **Importance of the egg shell of *Ascaridia galli* to the infectivity of its larva.**—*J. Parasit.* **42,** 122-125. [Authors' summary modified.] **2945**

Hatched larvae of *A. galli* or unhatched larvae in eggs from which the shell had been removed by alkali treatment, when given orally

to fowls, had a much lower survival rate than similar larvae or eggs injected directly into the duodenum. Normal eggs, which have not passed through the oesophagus, crop, proventriculus, and gizzard, can hatch when placed directly into the duodenum of the fowl.

IVASHKIN, V. M. (1956). **[Elucidation of the life-cycle of the nematode *Parabronema skrjabini* of ruminants.]**—*C. R. Acad. Sci. U.R.S.S.* **107,** 773-775. [In Russian.] **2946**

Parabronema skrjabini occurs in the abomasum of cattle, sheep, camels and some wild ruminants in the southern regions of the U.S.S.R., in Mongolia and in Pakistan. It causes chronic gastritis, resulting in unthriftiness and low production. The author found spirurid larvae, which were later shown to be those of *P. skrjabini,* in *Lyperosia titillans,* and was able to transmit the nematode by means of these flies. 170,000 coprophagic beetles were also examined, but with negative results. —R.M.

FUNNIKOVA, S. V. & KARPEEV, S. A. (1954). **[Epidemic *Setaria* infection of horses in the N. W. regions of the Tatar A.S.S.R.]**—*Trud. Kazan. nauchno-issled. vet. Inst.* **12,** 291-294. [In Russian.] **2947**

The authors examined the blood of about 70 horses once a month for 11 months. *Setaria* larvae were present in the blood of 68% of the horses, and the greatest number of larvae (9–36 per ml. blood) occurred during the period April–July. They made no observations concerning the adult parasites.—R.M.

KADENATSI, A. N. (1956). **[Setaria infection in sheep: biology of the causal parasite.]**—*C. R. Acad. Sci. U.R.S.S.* **107,** 191-192. [In Russian.] **2948**

A heavy incidence of *Setaria marshalli* was observed in sheep in the Far East region of the U.S.S.R. during the period July–October. Symptoms of the subacute and chronic form were twisting of the head, incoordination of movement, and partial or complete paralysis of the hindquarters. Occasionally an acute form was seen; this lasted for 2–3 days and 65–70% of affected sheep died. Immature *S. marshalli* were found in the cranial cavity beneath the dura mater, also in the brain tissue and rarely in the spinal cord. The same species occurred in local cattle [presumably in the abdominal cavity] without causing symptoms. The intermediate hosts were *Culex pipiens* and *Aedes* spp. Development of microsetariae into infective forms in the mosquito took 32–35 hours. The development of the parasite in the definitive host took at least 8–10 months. In calves experimentally infected by mosquitoes, the parasite was found only in the abdominal cavity. In lambs and kids, similarly infected, *S. marshalli* was found in the abdominal cavity and also in the brain and spinal cord, causing symptoms similar to those seen in spontaneous cases. —R.M.

POYNTER, D. (1956). **A comparative assessment of the anthelmintic activity in horses of four piperazine compounds.** — *Vet. Rec.* **68,** 291-297. **2949**

Piperazine adipate, citrate and phosphate, and piperazine-I-carbodithioic acid were found to be of equal efficiency as anthelmintics for horses when given at a dosage equivalent to 200 mg. piperazine base per kg. body wt. It was noticed that, while most horses readily ate food containing these compounds, a few refused the food, regardless of the compound used.—R.M.

ANTIPIN, D. H. (1956). **[Report of the scientific session of the All-Union Society of Helminthologists, Moscow, October 1955.]** —*Veterinariya, Moscow.* **33,** No. 2. pp. 90-95. [In Russian.] **2950**

The scientific session of the All-Union Society of Helminthologists was attended by 500 members and by visitors from Bulgaria, Czechoslovakia, East Germany, Hungary and Poland. The author gave abstracts of the 40 papers read before the veterinary section. Subjects dealt with included plans for the eradication of helminth parasites of livestock; allergic and serological tests for the early diagnosis of *Dictyocaulus* in sheep, *Trichinella* in pigs and *Fasciola* in cattle; immunity to and pathology of *Haemonchus* infestation of sheep; various aspects of *Fasciola* and *Macracanthorhynchus* in pigs, and *Muellerius* in sheep; the use of a suspension of 1·5 g. hexachloroethane in 2 ml. carbon tetrachloride, administered by s/c injection to sheep; the intratracheal inj. of aqueous iodine soln. (0·6–0·7 ml. per kg. body wt.) in *Dictyocaulus* infestation in horses.—R.M.

See also abst. **3048** (book, parasitology).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

BURMESTER, B. R. & WATERS, N. F. (1955). **The role of the infected egg in the transmission of visceral lymphomatosis.**—*Poult. Sci.* **34,** 1415-1429. **2951**

Three experiments are described:— (1) The production of gross lesions in the progeny of hens laying infected eggs. The results suggest that this form of virus transmission is not responsible for a significant amount of disease in such birds. (2) The relative importance of hatching and brooding on the transmission of virus from eggs laid by "shedder" hens. The latter was much more important in disease spread. (3) Aerosol transmission of virus in a commercial type hatcher. This type of air-borne transmission was of little significance. These workers emphasize the importance of separate hatching and brooding of chicks from different flocks. —F. T. W. JORDAN.

WINTON, B. (1954). U.S.A. MICHIGAN. **Thirteenth Report of the Regional Poultry Research Laboratory, East Lansing, Michigan, July 1, 1951 to June 30, 1954.** — pp. 25. [Mimeographed.] **2952**

This report covers a period of three years and deals mainly with the visceral form of lymphomatosis which accounted for 73·4% of all cases of lymphomatosis studied at the laboratory over a period of 13 years. Twenty-four hens of various lines of breeding were used in an experiment to determine whether the virus of visceral lymphomatosis is present in chick embryos from apparently normal hens. On an average 44 eggs from each of the 24 hens were incubated and material from the embryos injected intraperitoneally into day-old chicks. A total of 1,103 chickens was used. Over the experimental period (270 days) 306 of these died of visceral and 12 of neural lymphomatosis. Included in the 24 hens were two which had been reared in isolation; none of the 91 chickens inoculated with embryonic material from eggs laid by these two hens developed the disease. The incidence in chickens inoculated with embryonic material derived from the other 22 hens varied from *nil* (one hen) up to 63·5% in another.

In other experiments inoculation of filtrates of faeces and oral washings from both apparently healthy and clinically affected hens into chicks did not significantly increase the incidence of disease in the recipients above that which occurred in controls. The average age at death of experimentally infected birds varied with the route of infection used, being considerably shorter after intraperitoneal inoculation than after either tracheal, nasal, cloacal, conjunctival, oral, aerogenic or oesophageal administration. [The subcutaneous route does not appear to have been used.] Crossing of various resistant and susceptible lines did not reduce mortality in the progeny.

See also absts. **2880** (papillomatosis in cattle); **2899** (myxomatosis); **2921** (tolerance to Rous sarcoma).

NUTRITIONAL AND METABOLIC DISORDERS

HARDISON, W. A., ENGEL, R. W., LINKOUS, W. N., SWEENEY, H. C. & GRAF, G. C. (1956). **Fecal chromic oxide concentration in 12 dairy cows as related to time and frequency of administration and to feeding schedule.**—*J. Nutr.* **58,** 11-17. **2953**

The authors claim that greater uniformity of recovery of the Cr_2O_3 in 2-hourly samples resulted from twice-daily administration. The relation between administration and feeding time was immaterial and the variation between cows on any one day was greater than the variation between different samples from the same cow.—A. SEAMAN.

NEWBOLD, R. P. (1954). **Preliminary note on the extraction of a bloat-promoting fraction from red clover.**—*N.Z. J. Sci. Tech.* Sect. A. **36,** 285-286. **2954**

Juice extracted from red clover, which had been frozen and rapidly thawed, was administered, by drenching, to 10 cows of which 4 bloated. Of the remaining 6 animals 4 suffered no ill effects and 2 gave inconclusive results. It was considered that the bloat factor is contained in the non-fibrous part of the plant.—T.E.G.R.

BAXTER, J. T. (1956). **Suspected fodder-beet poisoning in pigs.** — *Vet. Rec.* **68,** 236-237. **2955**

Poor condition and diarrhoea developed in pigs eating 12 lb. of fodder-beet daily, shortly after the variety of the beet had been

abruptly changed and the protein supplement had been reduced from 15% animal to 10% vegetable protein. The pigs improved markedly after intake was reduced to 10 lb. daily of the original variety.—M.G.G.

DOYLE, L. P., TURMAN, E. J. & ANDREWS, F. N. (1956). **Some pathological effects of anterior pituitary growth hormone preparations on swine.** — *Amer. J. vet. Res.* **17**, 174-178. [Authors' summary modified.] **2956**

Three preparations of purified growth hormone were administered to 11 pigs beginning at 100–115 lb. in weight and continuing until approx. 220 lb. Four pigs died in 17–45 days, after severe muscular trembling and clonic convulsions. The most common histopathological changes were fatty infiltration and degeneration of the liver, fatty and albuminous degeneration of the kidney and generalized oedema. There was no evidence of any infectious or inflammatory process. In those in which no unfavourable response occurred there was a slight increase in growth rate, an increase in feed efficiency, with an increase in protein and a decrease in fat in the carcass.

ANON. (1956). **Distribution of DPPD stopped by F.D.A. action.**—*Vet. Med.* **51**, 298. **2957**

The Food and Drug Administration in the U.S.A. requested the manufacturers of diphenyl-*para*-phenylenediamine to stop distributing it for the purpose of mixing with poultry feeds as an anti-oxidant. This was because commercial samples proved to be toxic for pregnant rats.—R.M.

JENSEN, L. S., CARVER, J. S. & MCGINNIS, J. (1956). **Effects of vitamin E, N,N^1-diphenyl-para-phenylene diamine, and fish liver oil on reproduction in turkeys.**—*Proc. Soc. exp. Biol., N.Y.* **91**, 386-388. [Authors' summary modified.] **2958**

Fish-liver oil added to the diet greatly accentuated a deficiency of vitamin E in breeding turkeys. A reduction in fertility due to vitamin E deficiency was suggested. Both alpha tocopheryl acetate and diphenyl-*para*-phenylene diamine (DPPD) counteracted the deleterious effect of fish oil on hatchability. With fish oil in the diet, the tocopherol content of the yolks of the eggs was not appreciably increased by either vitamin E or DPPD even though hatchability was near maximum.

GOYCO, J. A. (1956). **A study of the relation between the liver protein regeneration capacity and the hepatic necrogenic activity of yeast proteins** — *J. Nutr.* **58**, 299-308. [Author's summary modified.] **2959**

Liver protein regeneration and hepatic necrogenic activity of 2 different types of yeast (a brewers' and a *Torula* yeast) were studied. Results show a close connexion between these 2 activities. The *Torula* yeast was necrogenic at both levels used (9 and 18% protein), and was incapable of restoring liver protein in depleted rats. The brewers' yeast behaved similarly at the lower level, but at the 18% level was non-necrogenic and capable of restoring maximum liver protein. Both DL-methionine and L-cystine when fed at a 0·5% level together with the *Torula* yeast prevented rats from developing liver necrosis, and induced complete regeneration of liver protein in depleted animals. When both yeasts were fed together (one-third brewers' and two-thirds *Torula* yeast), full protection against liver necrosis as well as optimum regeneration of liver protein was obtained.

CRANE, C. W. & TURNER, A. W. (1956). **Amino-acid patterns of urine and blood plasma in a cystinuric Labrador dog.**—*Nature, Lond.* **177**, 237-238. **2960**

The plasma and urine of a Labrador dog with acute urinary retention due to vesical calculi were examined for amino-acids by paper chromatography. In the plasma only a trace of cystine was demonstrable, whereas in the urine cystine and lysine predominated. In the urine of a healthy dog there was only a trace of cystine. The plasma and urine patterns were almost identical with those found in human cystinuria (the only difference being the presence of threonine in the urine of the affected dog), and indicated a similar aetiology—defective reabsorption of cystine by the tubules from ultrafiltrate from the glomeruli.—F. R. PAULSEN.

OLDFIELD, J. E., ALLEN, P. H. & ADAIR, J. (1956). **Identification of cystine calculi in mink.**—*Proc. Soc. exp. Biol., N.Y.* **91**, 560-562. [Authors' summary modified.] **2961**

One hundred and forty small calculi (0·3–3·1 mm. diam.) were obtained P.M. from the urinary bladder of a male mink. Qualitative and quantitative analyses indicated that they were almost entirely composed of cystine.

BARNES, J. E. & JEPHCOTT, B. R. (1955). **Phosphorus deficiency in cattle in the Northern Territory and its control.**—*Aust. vet. J.* **31**, 302-316. **2962**

A high incidence of osteomalacia in beef cattle was related to low serum inorganic phosphorus levels. The pasture, soil and drinking water in the affected area were uniformly low in phosphorus. Supplementation of the diet with phosphorus was attempted by several means, the most satisfactory being the injection of a solution of sodium orthophosphate into the drinking water troughs from an automatic dispenser.—D. C. Blood.

Lax, L. C., Sidlofsky, S. & Wrenshall, G. A. (1956). **Compartmental contents and simultaneous transfer rates of phosphorus in the rat.** — *J. Physiol.* **132,** 1-19. [Authors' summary modified.] **2963**

A mathematical basis for the measurement of transfer rates by means of tracers, in systems containing compartments in which uniform mixing cannot be assumed to occur, has been applied to the total P contained in the fasting 200-g. male rat.

With ^{32}P-labelled plasma phosphorus from donor animals as tracer material, rates of P transfer from the blood plasma to 15 organs were calculated in absolute units. Expressed as μg./min., these are: bones and teeth 153, muscle 56·1, liver 48·8, urine 12·3, blood cells 5·27, kidneys 4·52, skin 4·16, depot fat 3·01, gastro-intestinal tract 2·47, lungs and trachea 1·91, spleen 1·76, testes 1·72, heart 1·47, brain 0·24, remainder 1·8. The sum of these rates (299 μg. P/min.) is within 2·3% of the independently calculated total rate of P transfer from the central compartment to the peripheral ones (306 μg. P/min.).

Feaster, J. P., Hansard, S. L., Outler, J. C. & Davis, G. K. (1956). **Placental transfer of calcium in the rat.**—*J. Nutr.* **58,** 399-406. [Authors' summary modified.] **2964**

Radioactive calcium administered orally to pregnant rats was found to cross the placenta into the foetus at all stages of gestation studied, from the 14th to the 22nd day. The amount of labelled calcium transferred from dam to foetus in a given length of time after administration increased with the age of the foetus. An appreciable amount of the orally administered isotope was absorbed and transferred in the first half hour after administration. The findings indicate that some of the calcium transferred to the foetus must have been derived from the maternal skeleton.

Hegsted, D. M., Vitale, J. J. & McGrath, H. (1956). **The effect of low temperature and dietary calcium upon magnesium requirement.**—*J. Nutr.* **58,** 175-188. [Authors' summary modified.] **2965**

The Mg required per g. of diet to promote equal weight gains in rats was about 4 times higher at an environmental temp. of 55°F. than at 78°F. Since the maximum rate of gain was less at the lower temp., the difference in amount required for max. gain was about twofold. Diets high in Ca were detrimental when Mg intake was low. In some experiments diets high in Ca apparently aggravated the effects of exposure to cold.

Neales, T. F. (1956). **Components of the total magnesium content within the leaves of white clover and perennial ryegrass.** — *Nature, Lond.* **177,** 388-389. **2966**

The Mg content of the α and β chlorophyll and of the chlorophyll-extracted fibre was determined. Over 50% of the Mg was in the fibre and over 20% could not be attributed to either fibre or chlorophyll.

—A. Seaman.

Lamarche, M. & Boulangé, M. (1955). Action des sels de cobalt sur l'intestin isolé de lapin et de rat. **[Action of cobalt salts on the isolated intestine of rats and rabbits.]**—*C.R. Soc. Biol., Paris.* **149,** 2205-2207. **2967**

Cobalt citrate and cobalt chloride stimulated the tone and amplitude of spontaneous movements of isolated intestine when added at a conc. of 1 : 100,000. The chloride inhibited tone at 1 : 10,000.—R.M.

Bush, J. A., Jensen, W. N., Athens, J. W., Ashenbrucker, H., Cartwright, G. E. & Wintrobe, M. M. (1956). **Studies on copper metabolism. XIX. The kinetics of iron metabolism and erythrocyte life-span in copper-deficient swine.**—*J. exp. Med.* **103,** 701-712. [Authors' summary modified.] **2968**

Three copper-deficient pigs and 18 normal pigs were studied. The mean value for the plasma iron turnover rate in the deficient pigs was 1·76 mg./kg. per day; for the red cell iron incorporation rate, 1·24 mg./kg. per day; for the red cell iron turnover rate, 1·18 mg./kg. per day; for the red cell life span, 13 days. Corresponding figures in the normal pigs were 1·11 mg., 1·01 mg., 0·59 mg., and 63 days, respectively. The red cell life span was measured by the use of radioactive chromium in 26 pigs. The mean erythrocyte half-life of normal cells transfused into normal pigs was 17 days. The mean half-life of erythrocytes from copper-deficient pigs transfused into copper-deficient pigs was 9

days. The mean half-life of red cells from control animals transfused into copper-deficient pigs was 16 days, while that of erythrocytes from copper-deficient pigs transfused into normal pigs, was 13 days. The mean half-life of cells from iron-deficient pigs transfused into iron-deficient pigs was 19 days. It was concluded that copper deficiency anaemia results from both a shortened erythrocyte survival time and limited capacity of the bone marrow to produce red cells.

Wynne, K. N. & McClymont, G. L. (1956). **Copper-molybdenum-sulphate interaction in induction of ovine hypocupraemia and hypocuprosis.**—*Aust. J. agric. Res.* **7,** 45-56. **2969**

[See also *V.B.* **25,** 4113.] A basal diet fed to sheep had no effect on liver and blood copper levels. Supplementation of the diet with ammonium molybdate (to give a content of 5·1 p.p.m. molybdenum) caused a small but significant depression of liver copper retention. Supplementation of the basal diet with sodium sulphate (to give a content of 0·4% inorganic sulphate) caused a fall in liver copper levels but not to a degree usually associated with hypocupraemia. Addition of both sulphate and molybdenum (in the above proportions) to the basal diet caused a progressive fall in liver and blood copper levels and the sheep developed dystrophic wool and hypochromotrichia. The levels of copper, molybdenum and sulphate in this latter diet approximated those found in pasture in an area in which enzootic hypocuprosis occurred.

—D. C. Blood.

Williams, M. A. & Van Reen, R. (1956). **Molybdenum toxicity in the rat.**—*Proc. Soc. exp. Biol., N.Y.* **91,** 638-641. [Authors' summary modified.] **2970**

Large amounts of molybdenum in the food of rats did not alter the acetylation of *p*-aminobenzoic acid or the conjugation of benzoic acid with glycine. A depression of food intake and growth was evident 2 days after the addition of 0·12% molybdenum to the diet. Liver alkaline phosphatase activity was significantly increased in rats with symptoms of poisoning, whereas the activities of the kidney and intestinal alkaline phosphatases were significantly reduced.

Onegov, A. P., Melnikov, M. F. & Glushkova, N. A. (1956). **[White muscle disease of calves.]** — *Veterinariya, Moscow.* **33,** No. 3. pp. 55-58. [In Russian.] **2971**

The authors concluded that white muscle disease of calves was related to mineral deficiency in the soil, which caused a shortage of copper, cobalt, manganese and iodine in the vegetation and in the milk of cows. Deficiency of vitamins A, C and B_1 predisposed calves to the disease. It was prevented by feeding trace elements to pregnant and lactating cows and to young calves.—R.M.

Liu, C. H., Frape, D. L., Ashton, G. C. & Catron, D. V. (1956). **Vitamin A content of the livers of suckling pigs.**—*Proc. Soc. exp. Biol., N.Y.* **91,** 571-572. [Authors' summary modified.] **2972**

Livers of 35 pigs from 6 different litters were examined. The concentration of vitamin A increased from 15 μg. per g. at 1 day to 31 μg. at 7 days after birth. The average total amount of the vitamin in the liver increased rather uniformly from 0·57 mg. at birth to 4·54 mg. at 35 days after birth.

Garton, G. A., Duncan, W. R. H., Blaxter, K. L., McGill, R. F., Sharman, G. A. M. & Hutcheson, M. K. (1956). **Muscular dystrophy of beef cattle and unsaturated fats.**—*Nature, Lond.* **177,** 792-793. **2973**

It was shown that in enzootic muscular dystrophy, the milk fat which the calves receive is less unsaturated than that received by calves which do not usually develop the disease. The fat is, however, grossly deficient in tocopherol.—M.G.G.

Dinning, J. S., Cosgrove, K. W., Jr., Fitch, C. D. & Day, P. L. (1956). **Influence of vit. E deficiency in rabbit on urinary excretion of free amino acids.** — *Proc. Soc. exp. Biol., N.Y.* **91,** 632-633. [Authors' summary modified.] **2974**

Vitamin E deficiency in the rabbit results in increased excretion of free amino-acids in urine which is apparent before any physical signs of dystrophy are observed.

Müller, Z. & Ženíšek, Z. (1955). Vliv jodovaných bílkovin na sekrecí mléka u prasnic. **[Effect of iodinated casein on milk secretion in sows.]** — *Sborn. čes. Akad. zemědělsk Věd., Živoč. Výr.* **28,** 757-786. [In Czech. German and Russian summaries.] **2975**

Lactation was stimulated in 20 nursing sows by daily doses of 2–4g. of iodinated casein for periods of 28 and 56 days. Weight of their offspring was 4–5% higher than that of controls. Administration of iodinated casein to 10 weaned piglets had a similar growth-promoting effect.—E.G.

McClymont, G. L. & Setchell, B. P. (1956). **Non-utilization of acetate and utilization of glucose by the brain of the sheep.**—*Aust. J. biol. Sci.* **9,** 184-187. **2976**

The authors have previously published their observations on the effect of hypoglycaemia during pregnancy toxaemia on the brain of sheep [*V.B.* **25,** 3764]. From a comparison of the glucose, acetate and oxygen content of arterial blood with that of venous blood in the dorsal sagittal sinus of normal sheep, they found that glucose was utilized by the brain, but acetate was not. In this respect the sheep did not differ from non-ruminants. —R.M.

Goetsch, D. D., Underbjerg, G. K. L. & Swenson, M. J. (1956). **The utilization of intravenously administered glucose, invert sugar, and fructose in cattle.**—*Amer. J. vet. Res.* **17,** 213-216. [Abst. from authors' summary.] **2977**

Total blood sugar values returned to normal 2 hours after the administration of invert sugar and 6 hours after glucose. They were slightly above normal 6 hours after fructose. Diuresis was less marked after invert sugar than after glucose or fructose. Sugar excretion in the urine was the same after fructose and after invert sugar, and lower after these than after glucose. There was greater utilization of invert sugar than of either fructose or glucose. The relative merits of invert sugar and glucose in the treatment of metabolic disorders of cattle, such as ketosis, are discussed.

Raker, C. W. & Rogers, J. A. (1956). **Reports of liver glycogen determinations by biopsies on dairy cows.**—*Amer. J. vet. Res.* **17,** 205-206. [Abst. from authors' conclusions.] **2978**

It is suggested that the assessment of the glycogen content by liver biopsy may be helpful in the treatment of ketosis, and an instrument for the purpose is described.

See also absts. **2890** (vitamin D_2, prevention of Teschen disease); **2933** (cobalt and Haemonchus infestation in sheep); **3004** (dissecting aneurysm caused by Lathyrus odoratus).

DISEASES, GENERAL

Bollini, V. (1956). Stato attuale e possibilità di sviluppo della semeiotica radiologica in medicina veterinaria. **[Present status and possibilities for the development of radiological diagnosis in veterinary medicine.]** — *Atti Soc. ital. Sci. vet.* Palermo, 1955. **9,** 125-257. Discussion: pp. 258-261. **2979**

A comprehensive review of the actual and possible uses of radiology as a diagnostic aid in veterinary practice.—T.E.G.R.

Nižnánsky, F. (1956). Problém antropozoonóz v našom pol'nohospodárstve a jeho riešenie. **[Solution of the problem of zoonoses in Czechoslovakia.]** — *Vet. Čas.* **5,** 3-15. [In Slovak. German and Russian summaries.] **2980**

N. criticized control measures in Czechoslovakia against some diseases affecting man and animals, particularly those against anthrax and brucellosis. He stressed the importance of large-scale research on Newcastle disease, psittacosis, leptospirosis, Q fever, listeriosis and toxoplasmosis, the incidence of which is gradually increasing in Czechoslovakia.—E.G.

Hecke, F. (1956). Vergleichende statistische Untersuchungen des Seuchengeschehens bei Maul-und Klauenseuche, Schweinelähmung und Rauschbrand. **[Comparative statistical examination of the epidemiology of foot and mouth disease, Teschen disease and blackleg.]**—*Zbl. Bakt. I.* (*Orig.*) **166,** 1-29. [English, French and Russian summaries.] **2981**

By the statistical analysis of the incidence of F. & M. disease, Teschen disease and blackleg, H. obtained graphs showing epidemiology curves characteristic of each of these diseases. —R.M.

Amfiteatrov, F. Z. (1954). **[Infectious equine encephalitides.]** — *Trud. Kazan. nauchno-issled. vet. Inst.* **12,** 59-84. [In Russian.] **2982**

The following infections were the cause of encephalitis in horses in the Tatar A.S.S.R.: equine virus encephalomyelitis, equine infectious anaemia, and *Babesia equi* infection. *Trypanosoma equiperdum* and *Babesia caballi* infections were also occasionally associated with nervous symptoms. The author discussed the seasonal and geographical incidence of these diseases since about 1930, and their epidemiology and differential diagnosis. —R.M.

Noury, M. (1955). Infection mixte trypano-spirochétienne spontanée du lapin. **[Natural infection of a rabbit with trypanosomes and**

spirochaetes.] — *Arch. Inst. Pasteur Maroc.* **5,** 26-30. **2983**

A case report, with transmission experiments.—R.M.

VAN ROON, T. & GROOTENHUIS, G. (1956). Een infectieuze catarr van de voorste luchtwegen bij het paard. [**An infectious catarrh of the upper respiratory tract in horses.**]—*Tijdschr. Diergeneesk.* **81,** 525-528. [In Dutch.] **2984**

During late autumn in 1955, 13 horses on 7 farms in Dutch Flanders developed a mucopurulent nasal discharge, with conjunctivitis and high body temp., which cleared up after 1–2 weeks in the absence of complications. The aetiology was unknown.—R.M.

SEIERSEN, C. A. (1956). Sommersår. Iagttagelser fra praksis. [**"Summer sores" in horses. Practical observations.**] — *Nord. VetMed.* **8,** 368-374. [In Danish. English and German summaries.] **2985**

"Summer sores" in army horses seemed to be associated with a high ammonia content of the air in stables where a deep-litter system was used. *Habronema* larvae were never observed. The condition was successfully treated over a number of years by the removal of affected horses from the ammonia-laden atmosphere of the stable.—M.G.G.

PENNY, R. H. C. (1956). **Post-parturient haemoglobinuria (haemoglobinaemia) in cattle.**—*Vet. Rec.* **68,** 238-241. **2986**

Three cases of post-parturient haemoglobinuria are reported from one farm. Symptoms, treatment and lesions are described. The disease was associated with low blood inorganic phosphorus and cold climatic conditions.—JOHN SEAMER.

MOREL, P. (1956). "Skin-lesions" chez un boeuf. [**"Skin tuberculosis" in an ox.**] — *Rec. Méd. vét.* **132,** 214-218. **2987**

At slaughter a 3½-year-old ox was found to have lesions on the hind legs, extensive on one, limited on the other. The areas were swollen and the hair "staring". Incision revealed amyloid tissue 2 cm. thick with necrotic foci and a creamy pus containing calcareous granules. A g. pig injected with material from the lesions died in 9 days with extensive "pseudo-tuberculous" lesions. No organisms were seen in a Ziehl-Neelsen stain of the pus. The ox had been a tuberculin reactor and the lesions had resulted from a "farcy"-like condition a year previously.

—A. SEAMAN.

BEIJERS, J. A. (1956). Vetverharding of vetnecrose. [**Fat necrosis in cattle.**]—*Tijdschr. Diergeneesk.* **81,** 199-207. [In Dutch. English, French and German summaries.] **2988**

In addition to lesions in the abdominal cavity, B. observed subcutaneous fat necrosis in calves, and occasionally in foals, particularly in the scrotal or mammary regions or near the external subiliac lymph nodes. The diagnostic test described by Hoflund *et al.* [*V.B.* **24,** 1189 & 4114], based on an increase in beta-globulin in the blood of affected cattle, was not specific for fat necrosis. The condition was, however, associated with a decrease in blood cholesterol (20–60 mg.%) and this served to differentiate it from neoplasia. The aetiology was discussed.—R.M.

HOFMANN, W. (1955). Untersuchungen über die Ursachen und die geographische Verbreitung der "weissen Fleckniere" des Kalbes im Einzugsgebiet des Schlachthofes Heilbronn a. Neckar unter besonderer Berücksichtigung der pathologisch-anatomischen und histologischen Veränderungen. [**Geographical distribution, pathology and histology of "white-spotted kidney" (interstitial nephritis) in calves.**] — *Inaug. Diss., Munich.* pp. 24. **2989**

Interstitial, focal nephritis was investigated in 29 calves 4–6 weeks old, slaughtered over a period of 4 months. There appeared to be an acute, a subacute and a chronic form. Histologically the acute form consisted of minute, raised, whitish foci. Lymph nodes were enlarged and there were accumulations of leucocytes and lymphocytes. In subacute cases foci were larger, fibroblasts were present and inflammation was regressing. In chronic cases there were only few, fairly large lesions, some of which had a concave surface. Massing of connective tissue cells was observed. Bacteriologically 17 of the kidneys were sterile; from the remainder either *Bact. coli,* staphylococci or *Proteus vulgaris* were isolated. Examination of heart blood for *Leptospira* was negative. Incidence, according to abattoir statistics, was highest during March–May. Soil, feeding and housing conditions were investigated, but no conclusions as to the cause were reached.—E.G.

ZADURA, J. (1955). Studia anatomo- i histopatologiczne nad odmą jelitową u świń. [**Anatomy and histopathology of intestinal emphysema in pigs.**] — *Roczn. Nauk. rol.*

Ser. E. **67**, 285-297. [In Polish. English and Russian summaries.] **2990**

Intestinal emphysema occurs mainly in pigs, sometimes in man and has also been recorded once in a sheep and once in a fowl. It occurs only in the jejunum and ileum and can be found in all layers of the intestinal wall but mainly under the serous and mucous membranes. The blister-like lesions vary in size from that of a pin-head to that of a hazel nut; they occur in clusters reaching the size of a fist. The aetiology and pathogenesis are obscure. Z. had found only 3 cases in 10 years out of several thousand pigs examined P.M. One was in an abattoir, the other two were store pigs which died after a period of unthriftiness, dulness, diarrhoea and anorexia. In the slaughter pig the lesions were confined to the jejunum and ileum, in the other two to the jejunum only. Histologically emphysema was found in all layers of the intestinal wall, the capillaries were distended and perivascular lymphocytic and eosinophilic infiltrations were noted. Z. discussed the possible causes. According to the literature the condition is confined to males.—M. Gitter.

Mach, P. (1956). Pokus a stanovení šiře Weltmannova spektra u klinicky zdravých psů. **[The Weltmann reaction in clinically healthy dogs.]** — *Vet. Čas.* **5**, 16-21. [In Czech. German and Russian summaries.] **2991**

Details are given of examination of 104 serum samples from clinically healthy dogs by the Weltmann serum turbidity reaction [*V.B.* **18**, 2244].—E.G.

Hansen, H. -J. & Olsson, S. -E. (1954). **The effect of a single violent trauma on the spine of the dog.** — *Acta orthopaed. scand.* **24**, 1-7. **2992**

A single violent trauma of the spine of the dog was more likely to fracture a vertebra than to rupture an intervertebral disc. Disc rupture of traumatic origin differed pathologically from the most common type of disc protrusion in dogs—that occurring in chondrodystrophy. It was concluded that most cases of disc protrusion were systemic, rather than traumatic in origin.—R.M.

Cameron, G. R. & Finckh, E. S. (1956). **The production of an acute haemolytic crisis by the subcutaneous injection of glycerol.**—*J. Path. Bact.* **71**, 165-172. [Abst. from author's summary.] **2993**

S/c injection of glycerol solutions into rats and rabbits led to rapid haemoglobinaemia, followed by haemoglobinuria. G. pigs and mice responded with similar but less severe effects. Haemolysis could be detected within 15 min. of the inj. of moderate doses, but renal clearance of the serum was complete after 3 hours. Diethylene glycol produced haemolysis of similar degree when injected s/c, and ethylene glycol produced similar but less severe haemolysis. Propylene glycol, trimethylene glycol, acetone, benzol, petroleum ether and strong solns. of glucose and sucrose were without effect.

Moore, E. N. (1955). **Hemorrhagic disease in chickens.**—*Proc. N. Cent. St. Poult. Dis. Conf., Purdue Univ. Lafayette, May* 17 & 18, 1955. pp. 27-31. [Mimeographed.] **2994**

In Ohio "haemorrhagic disease" of poultry [*V.B.* **24**, 569; **25**, 758, 1443] was first diagnosed in 1952, when 10% of a flock receiving sulphaquinoxaline died and there was a high rate of morbidity. Since then M. states that outbreaks of a similar disease have been observed in which sulphaquinoxaline did not seem to be implicated. Under experimental conditions sulphaquinoxaline at 0·05% or more of the food caused the haemorrhagic syndrome in chicks 3–5 weeks old. Younger chicks were little affected. When the drug was used at 0·1% of the food, up to 27% of the treated birds died. Under field conditions vitamin K is not an effective treatment for the haemorrhagic syndrome. Chronic respiratory disease may occur concurrently with haemorrhagic disease and it is suggested that high mortality may result if the two occur together.

During a consideration of the pathology of the haemorrhagic syndrome M. states that the appearance of yellow bone marrow, formerly considered by him to be diagnostic, is no longer regarded as reliable. It is considered essential to devise means of diagnosing accurately this economically important disease.
—S. Brian Kendall.

Sacher, G. A. (1956). **A sign of severe radiation injury observed in the erythrocyte sedimentation of dogs.** — *Blood.* **11**, 174-183. [Interlingua summary.] **2995**

S. examined erythrocyte sedimentation of irradiated dogs and plotted log of sedimentation distance against log of initial sedimentation time. During the period of maximum acute death rate the curves of dogs which had received lethal doses of radiation could be dis-

tinguished from those which had received sublethal doses.—JOHN SEAMER.

ITIKAWA, O., YONEMURA, T., ISHITANI, R. TANAKA, K., MIYAO, N., TAKANAMI, M., HORIUCHI, T., SHIGA, K., IIZUKA, S. & YAMAMOTO, H. (1955). **[Experimental study of the casualties in three-month-old chickens after administration of Bikini ash.]** — *Exp. Rep. nat. Inst. Anim. Hlth*, Tokyo. No. 30. pp. 149-166. [In Japanese and English.] **2996**

There were no significant findings. Most of the radioactive substances were excreted in the faeces within 24 hours.—T.E.G.R.

See also absts. **3050** (book, cattle diseases); **3052** (book, histopathology of the liver).

POISONS AND POISONING

HUTCHINS, D. R. (1955). **Lead poisoning in cattle.**—*Aust. vet. J.* **31**, 317-319. **2997**

Of 59 consecutive cases of disease in cattle manifesting marked nervous symptoms, 8 were due to lead poisoning, 29 to acetonaemia, 11 to encephalopathy, 8 to poisoning with paspalum ergot *(Claviceps paspali)*, and 3 to tetanus. H. discussed the clinical differentiation of these entities. Treatment of cases of acute lead poisoning, including sedation, rumenotomy and oral administration of magnesium sulphate, was uniformly unsuccessful.—D. C. BLOOD.

CLEGG, F. G. (1956). **An outbreak of copper poisoning in sheep.** — *Vet. Rec.* **68**, 332-333. [Author's summary modified.] **2998**

Copper poisoning in rams is described. The long-standing administration of a mineral mixture containing copper is considered to have resulted in the accumulation of copper in the liver. The first death occurred 10 days after the administration of a worm drench containing nicotine and copper sulphate.

NAKASHIMA, R. & STOERK, H. C. (1956). **Effect of adrenalin on resistance of adrenalectomized rats to certain toxic agents.**—*Proc. Soc. exp. Biol., N.Y.* **91**, 401-404. [Authors' summary modified.] **2999**

Administration of adrenaline prolonged the survival time of adrenalectomized rats injected with potassium chloride, formaldehyde, or sodium arsenite. Adrenaline was more effective than cortisone in providing protection against these agents. The protective effect was abolished by the simultaneous administration of two sympatholytic drugs. The mechanism of protection appeared to be the prevention of vascular collapse. It is suggested that the medullary secretion is an important factor in resistance to traumatic shock.

VISSER, J. H. (1956). **Prussic acid poisoning on pastures.** — *Fmg S. Afr.* **31**, 216-217. [Abst. from author's summary.] **3000**

Prussic-acid poisoning on sorghum pastures can be prevented by: (1) keeping a good balance between phosphatic and nitrogenous fertilizers; (2) allowing animals to graze the crop only after it has attained a height of 18–24 inches; (3) feeding some roughage to the animals before grazing them on potentially dangerous pasture.—M.G.G.

DAMSEAUX, J. (1956). Etude de trois légumineuses fourragères introduites au Congo belge en vue de l'alimentation du bétail. **[Study of three leguminous forage plants introduced into the Belgian Congo for feeding ruminants.]** — *Bull. agric. Congo. belge.* **47**, 93-111. [In French. Flemish summary.] **3001**

The plants studied were *Medicago sativa, Stylosanthes gracilis* and *Leucaena glauca.* The results of feeding experiments on sheep and chemical analysis of the first two legumes were satisfactory. *L. glauca* was toxic for sheep; a dose of 500 g. given over a period of 3–6 days produced almost complete loss of the fleece about 15 days after the first feed, which was followed in 2 out of 3 sheep by death from haemorrhagic cystitis.—R.M.

CORDY, D. R. (1954). **Nigro-pallidal encephalomalacia (chewing disease) in horses on rations high in yellow star thistle.**—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 149-153. Discussion: pp. 153-154. **3002**

This condition was studied in 29 horses from 10 counties in California. It affected animals on poor dry pastures with an abundance of yellow star thistle, *Centaurea solstitialis.* The symptoms were associated with the muscles supplied by the 5th, 7th and 12th cranial nerves and consisted of purposeless chewing and tongue-flicking movements, and general impairment of prehension and mastication of food. Progressive weakness followed in long-standing cases. The animals were slaughtered for P.M. and histological

examination between the 2nd and the 43rd days after the onset of symptoms. Areas of necrosis and/or ulceration were present in the buccal mucosa of some, while brain lesions (softening and necrosis of the substantia nigra and globus pallidus) were found in all the subjects. The condition was reproduced experimentally in 3 horses by feeding on thistle only.—T.E.G.R.

Bell, A. T., Newton, L. G., Everist, S. L. & Legg, J. (1955). ***Acacia georginae* poisoning of cattle and sheep.** — *Aust. vet. J.* **31,** 249-257. **3003**

Heavy mortality in cattle and sheep has occurred for many years in the Georgina River district of Queensland and use of the area for grazing has been severely restricted. By feeding and paddock trials the mortality has been shown to be due to the ingestion of seeds of the gidgee tree *(Acacia georginae)*. The leaves from suckers of the tree are also poisonous. No specific toxic principle has been isolated. Sudden death is the most striking feature in both cattle and sheep. Driving or excitement precipitate an attack of sluggishness, trembling, staggering and recumbency. Dyspnoea and cyanosis are marked. Affected animals may die at this stage or recover and show transient weakness and ataxia. At P.M. examination cyanosis is evident. In sheep there is also congestion and oedema of the lungs and in cattle congestion of the abomasal mucosa.—D. C. Blood.

Bean, W. B. & Ponseti, I. V. (1955). **Dissecting aneurysm produced by diet.** — *Circulation.* **12,** 185-192. **3004**

An account of further experiments on the occurrence of dissecting aneurysms of the aorta, together with kyphoscoliosis, in rats fed a diet containing 50% sweet pea meal *(Lathyrus odoratus)* for from 5 to 9 weeks. [See also *V.B.* **23,** 1698.]—R.M.

Cunningham, I. J. (1956). **Photosensitivity diseases in New Zealand. VIII. *Hypericum pulchrum* inactive.**—*N.Z. J. Sci. Tech.* Ser. A. **37,** 483. [Author's summary copied *verbatim.*] **3005**

Powdered leaf of *Hypericum pulchrum* administered to a sheep in water suspension did not cause photosensitivity.

Vendargon, X. A. (1956). **A note on suspected benzene hexachloride poisoning in cattle.**—*J. Malay. vet. med. Ass.* **1,** 57-59. **3006**

Benzene hexachloride poisoning was suspected in a herd of 26 cattle of which 3 died and the rest recovered after symptomatic treatment. The symptoms and P.M. findings are described.—T.E.G.R.

See also absts. **2955** (fodder-beet); **2957** (diphenyl-para-phenylene-diamine); **2970** (molybdenum); **2998** (copper); **2999** (resistance of adrenalectomized rats to poisons); **3044** (report, Tanganyika)

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease).

Trum, B. F. & Wasserman, R. H. (1956). **Studies on the depression of radioiodine uptake by the thyroid after phenothiazine administration. II. Effect of phenothiazine on the horse thyroid.** — *Amer. J. vet. Res.* **17,** 271-275. [Authors' summary modified.] **3007**

Single therapeutic doses of phenothiazine N.F. (green) depressed the thyroid uptake of I^{131} in the horse (purified phenothiazine had no such effect). No depression of thyroid uptake of I^{131} was observed after 18 and after 30 days of continuous low dosage. The plasma disappearance curve and tissue distribution of I^{131} were similarly affected by potassium iodide and phenothiazine N.F. (green) and the latter did not decrease the protein-bound iodine of the plasma. It is considered that phenothiazine has little, if any, effect on the thyroid of the horse.

Pinniger, J. L. & Hutt, M. S. R. (1956). **The distribution and fate of iron injected intravenously into rabbits.**—*J. Path. Bact.* **71,** 125-134. [Authors' summary modified.] **3008**

When saccharated iron oxide is injected i/v into rabbits, it is stored initially in the reticulo-endothelial system, the most important storage sites being the spleen, liver and bone-marrow. The liver appears to be the main route of excretion. The kidney also contributes, probably because of solution of the iron granules impacted in the glomerular capillaries. Removal of iron is a very slow process. Iron-dextran compound behaves slightly differently in that it appears in the liver cells almost immediately after i/v inj.

These preparations are not acutely toxic unless over 300 mg. are injected at once. No evidence was produced that, after repeated

smaller injections up to a level of 1·2 g., the organs were damaged by their increased iron content, but with doses above 1·2 g. the kidneys showed extensive damage, apparently due to impaction of the capillaries. No fibrosis was produced in the liver. Reasons are given for believing that repeated doses of iron-dextran compound over a period of years might initiate experimental haemochromatosis.

HITTERS, J. G. (1954). La terapéutica con el ultrasonido y su aplicación en la medicina veterinaria. **[Ultrasonic wave therapy in horses.]**—*Rev. Vet. Milit., B. Aires.* **2,** 95-103. **3009**

Ultrasonic wave therapy was applied to 15 horses with various arthritic conditions (including sprained shoulder, hip and fetlock joints and a double bone spavin) and one with myositis. A septic punctured wound and an indolent ulcer were also treated. A cure was claimed for all except the bone spavin which, however, showed an improvement. It was considered that this line of treatment was indicated in the case of articular and muscular affections, bursitis and indolent ulcers; success depended on an increasing dosage and good contact between the radiating surface and the area to be treated. A good conducting substance was pure glycerine.—T.E.G.R.

FRITSCH, R. & DELLMANN, H. D. (1956). Levallorphan [(—)-3Oxy-N-allyl-morphinan -tartrat], ein spezifischer Antagonist des Morphins und seiner Derivate. **[Levallorphan(3-hydroxy-N-allylmorphine tartrate), a specific antagonist of morphine and its derivatives.]**—*Zbl. VetMed.* **3,** 158-165. [English, French and Spanish summaries.] **3010**

Levallorphan effectively reverses the respiratory depression, analgesia and narcosis produced in dogs by "Polamivet" (a proprietary veterinary analgesic mainly based on methadone), morphine or pethidine, and is suitable for emergency use in all animals. It was impossible to find a combination of levallorphan and "Polamivet" which would, in dogs, obviate respiratory depression while leaving narcosis unaffected, or, in cats and cattle, prevent agitation without abolishing analgesia.—G. P. MARSHALL.

ARTHUR, G. H. (1956). **Some notes on a preliminary trial of segmental epidural anaesthesia of cattle.**—*Vet. Rec.* **68,** 254-256. **3011**

Using the method described by Magda *et al.* (1952), the author obtained good anaesthesia of the flank region of cows by injecting 3% lignocaine hydrochloride soln. into the epidural space, between the 1st and 2nd lumbar vertebrae. The method possessed advantages over epidural injection between the 1st and 2nd coccygeal vertebrae and paravertebral anaesthesia. It was employed for caesarian section.—R.M.

See also absts. **2767** (oxytetracycline in bovine mastitis); **2768-2769** (streptococcal mastitis); **2776** (isoniazid in bovine T.B.); **2781** (cortisone in E. rhusiopathiae infection); **2788** (antibiotics); **2815** (penicillin in blackleg); **2818** (d-tubocurarine chloride in tetanus); **2825** (antibiotics and cortisone acetate enhancing pathogenicity of C. albicans); **2835** (action of antibiotics and arsenicals on PPLO in vitro); **2847** (sulphaquinoxaline in bovine coccidiosis); **2849** (nitrofurazone and chloraquin sulphate in coccidiosis of sheep and goats); **2850** (acriflavine in coccidiosis); **2853** (treatment of coccidiosis in chickens); **2854** (nitrophenide and sulphaquinoxaline in coccidiosis in chicks); **2898** (antibiotics in feline pneumonitis); **2922** (louse control); **2924** (Oestrus ovis control); **2925** (drugs used against Lucilia cuprina); **2928** (B.H.C. in psoroptic mange in cattle); **2930** (treatment of Megninia cubitalis infestation in poultry); **2932** (phenothiazine in trichostrongylosis in goats); **2934-2935** (carbon tetrachloride in fasciolíasis); **2936** (phenothiazine in ancylostomiasis); **2941** (Lugol's soln. in lungworm); **2943-2944** (toluene and cadmium salts in ascariasis); **2949** (piperazine, anthelmintic); **2950** (hexachlorethane/carbon tetrachloride in helminthiasis in sheep; iodine in Dictyocaulus infestation in horses).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

SCHMIDT-NIELSEN, B., SCHMIDT-NIELSEN, K., HOUPT, T. R. & JARNUM, S. A. (1956). **Water balance of the camel.** — *Amer. J. Physiol.* **185,** 185-194. [Authors' abst. modified.] **3012**

Camels *(Camelus dromedarius)* were exposed to prolonged periods of water deprivation in the Sahara. Determinations were made of: weight changes, water and food intake, urine flow and concentrations, plasma concentrations, etc. The camel can tolerate a loss of water corresponding to 30% of its body wt. even when exposed to the severe desert heat. Other mammals dehydrated in a hot environment may die from circulatory failure when the water loss involves 12% of the body wt. Unlike many other mammals the camel does not lose its appetite when deprived of water but continues to eat normally until the dehydration becomes very severe. It has a low urine output (0·5–1 litre/day on a diet of dates and hay), a low water content in the faeces, and, when dehydrated in the summer, a very low evaporative water loss. When offered water the camel drinks in 10 min. enough water for complete rehydration. The longest period that a camel was kept on dry food without drinking water in the hot summer was 17

days. This camel was not working and it had its protective fur which decreased the heat gain from the environment.

McKeown, T. & MacMahon, B. (1956). **Sex differences in length of gestation in mammals.**—*J. Endocrin.* **13,** 309-318. [Abst. from authors' summary.] **3013**

An account of a comparative study of the period of gestation of male and female foetuses in human beings, g. pigs, sheep, pigs and rabbits. Data are also available for cattle, horses, camels and goats. Gestation is longer for males in cattle, horses and possibly sheep and camels; it is longer for females in human beings and possibly in g. pigs.

Kaemmerer, K. (1955). Der Schlagkarren als bewegungsphysiologisches Problem (Eine Studie zur Arbeits-und Bewegungsphysiologie des Pferdes). **[Physiology of work performed by a horse pulling a cart.]**—*Arch. exp. VetMed.* **9,** 442-465. **3014**

A detailed study of the mechanics and physiology of horse traction of a two-wheeled cart loaded with 200 kg. or more.—R.M.

MacDonald, M. A., Krueger, H. & Bogart, R. (1956). **Rate and efficiency of gains in beef cattle. IV. Blood hemoglobin, glucose, urea, amino acid nitrogen, creatinine and uric acid of growing Hereford and Angus calves.** — *Sta. tech. Bull. Ore. agric. Exp. Sta.* No. 36. pp. 34. **3015**

The blood constituents of 45 animals were determined at 500 and 800 lb. body wt. The variations associated with increasing weight and those occurring between individuals, sexes and breeds were discussed.—John Seamer.

Holman, H. H. (1956). **Changes associated with age in the blood picture of calves and heifers.**—*Brit. vet. J.* **112,** 91-104. **3016**

Over a period of three years H. examined the blood of Ayrshire heifers from birth to 30 months of age. Comparing his results with those of other workers he suggested provisional normal values for this age group. Significant changes occur in haemoglobin levels, packed cell volume and differential counts between birth and four months of age, after which time the various indices approach those of adults.—John Seamer.

Arendarčík, J. & Miklušičák, R. (1956). Príspevok k štúdiu zmien morfologických elementov v krvi a v spektre krvných bielkovín u rožného statku pred rumenotómiou a po rumenotómii. **[The blood picture and albumin fraction in cattle before and after rumenotomy.]** — *Vet. Čas.* **5,** 130-140. [In Slovak. German and Russian summaries.] **3017**

The blood picture and blood-protein fractions were studied in 19 cows one day before and 10 days after rumenotomy. Variations in erythrocyte and haemoglobin values before and after rumenotomy were insignificant. The white blood picture, however, varied quantitatively and qualitatively. Neutrophilia was present from the first day after rumenotomy. Young forms gradually gave place to segmented forms, the number of which amounted to about 22% on the 10th day. The albumin fractions determined by paper-electrophoresis did not show marked variations.—E.G.

Havassy, I. & Slanina, L. (1956). Biochémia a fyziológia bielkovín krvných sér domácich zvierat. IV. Elektroforeticko-polarografické sledovanie zmien bielkovinného spektra novorodených prasiat. **[Biochemistry and physiology of serum protein in domestic animals. IV. The protein spectrum in new-born piglets examined by electrophoresis and polarography.]**—*Vet. Čas.* **5,** 31-41. [In Slovak. German and Russian summaries.] **3018**

An account of quantitative and qualitative examination of serum protein in piglets from birth to the age of 33 days, by polarography and by colorimetric evaluation of protein fractions obtained by paper electrophoresis. As compared with adult animals the α-globulin was higher and the γ-globulin fraction lower in new-born animals. After feeding colostrum there was a rapid increase in the γ-globulin fraction and a relative decrease in α-globulin and albumin. The γ-globulin content then begun to fall until at the age of 33 days it reached a level lower than in adult animals. One piglet from a dam which developed clinical signs of swine fever on the sixth day after parturition, was given 5 ml. of swine fever serum when 18 days old. The relative protein values in this piglet were within the same limits as in the others examined.—E.G.

Ichikawa, S. (1955). **Possible role of the non-specific hyaluronidase inhibitor in serum on the uterine motility.** — *Bull. Univ. Osaka Prefect. Ser.* **B. 5,** 111-118. [In English.] **3019**

The amount of non-specific hyaluronidase inhibitor in the serum of pregnant rabbits

remained almost constant during pregnancy, but increased between the 3rd and 4th days before parturition. Maximum increase occurred 2 days after parturition and the amount in the serum returned to normal 3–5 days later. Serum containing the maximum amount of hyaluronidase inhibitor stimulated the isolated uterus of rats more strongly than serum containing a minimum amount. Serum in which the inhibitor had been destroyed by heat had no action on the uterus. The author discussed the role of the inhibitor as an oxytocic agent during parturition.—R.M.

HOLMES, R. L. (1956). **Effect of pinealectomy on the rat pituitary.**—*Nature, Lond.* **177,** 791. **3020**

Cell counts on the anterior lobes of pituitary glands from intact and pinealectomized rats revealed no significant degenerations or changes in the numbers of acidophiles and basophiles present in those of the latter group.—JOHN SEAMER.

CHOH HAO LI. (1956). **Pituitary growth hormone as a metabolic hormone.**—*Science.* **123,** 617-619. **3021**

The known biological effects of pituitary growth hormone are discussed.

—JOHN SEAMER.

See also abst. **3044** (report, Tanganyika).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

ATKINSON, J. W. (1956). **Official poultry inspection programs.** — *Vet. Med.* **51,** 212-217. **3022**

A discussion of the present position in the U.S.A. of the inspection of poultry before and after slaughter for food, with reference to existing and projected legislation, and with emphasis on the role of the veterinary inspector.—R.M.

See also abst. **3055** (book, forensic vet. medicine).

REPRODUCTION AND REPRODUCTIVE DISORDERS

MANN, T., LEONE, E. & POLGE, C. (1956). **The composition of the stallion's semen.** — *J. Endocrin.* **13,** 279-290. [Authors' summary modified.] **3023**

The composition of stallion semen was studied by microscopic and chemical methods and the extent of seasonal fluctuations in composition was determined. Two characteristic constituents, ergothioneine and citric acid, were shown to originate in the ampullae and seminal vesicles respectively; the contribution of these glands towards the final composition of normal stallion ejaculates was studied. By means of fractionate collection of semen, an attempt was made to determine the sequence in which the different portions of the semen are ejaculated. It was demonstrated that the fraction containing spermatozoa is rich in ergothioneine but not in citric acid, and that it is followed by a fraction with a high content of citric acid and consisting mainly of the vesicular secretion. The chemical characteristics of donkey semen were briefly reported.

ADLER, H. C. & RASBECH, N. O. (1956). Undersøgelser over sulfanilamids virkning på tyresaeds fertilitet. **[Studies of the effect of sulphanilamide on the fertility of bovine semen.]**—*Nord. VetMed.* **8,** 351-356. [In Danish. English and German summaries. English summary modified.] **3024**

A total of 22,759 first inseminations were performed with 3,069 ejaculates from 19 *Vibrio fœtus*-free bulls of normal fertility. Each ejaculate was divided into 2 portions, one being diluted with diluent A : 3·2% sodium citrate (2 H_2O), 0·3% sulphanilamide and 1,000 μg. dihydrostreptomycin/ml. + 25–30% egg yolk, and the other with diluent B : A, less the sulphanilamide. A slight decrease in the percentage of non-returns was found with the use of sulphanilamide. The reasons for this are discussed and comparisons made with experimental results obtained by other workers. The conclusion is that sulphanilamide should no longer be added to bull semen.

GLOVER, T. D. (1956). **The effect of scrotal insulation and the influence of the breeding season upon fructose concentration in the semen of the ram.**—*J. Endocrin.* **13,** 235-242. [Author's summary modified.] **3025**

Six rams were subjected to insulation of the scrotum as a means of increasing the temperature of the testes, and the levels of fructose in the semen estimated before, during and after treatment. During treatment

a fairly rapid increase in seminal fructose occurred, the level only gradually returning to normal after treatment ceased. No pronounced effect of scrotal insulation on libido was demonstrable. Observations on ram semen collected towards the end of the breeding season revealed that a decrease in seminal fructose occurs immediately before the decline in libido becomes apparent, and at a time when the normal density range of spermatozoa is still maintained.

I. Dauzier, L. (1955). Recherches sur les facteurs de la remontée des spermatozoïdes dans les voies génitales femelles (cornes uterines). Étude chez la brebis. [**Factors controlling the ascent of spermatozoa within the horns of the uterus of the ewe.**]—*C. R. Soc. Biol., Paris.* **149,** 1872-1874. **3026**

II. Dauzier, L. (1955). Recherches sur les facteurs de la remontée des spermatozoïdes dans les voies génitales femelles (trompes de fallope). Étude chez la brebis. [**Factors controlling the ascent of spermatozoa within the fallopian tubes of the uterus of the ewe.**] —*Ibid.* 1941-1943. **3027**

I. Ram spermatozoa, killed by cold and separated from the semen by centrifugation, were placed in the cervical region of the uterine horns of 6 anaesthetized, oestrous ewes. Four hours later they were found along the whole length of the uterine horns. Killed spermatozoa did not reach the top of the horns of dioestrous ewes.

II. Killed spermatozoa placed at the top of the uterine horns of anaesthetized, oestrous ewes, were not found in the fallopian tubes 5 hours later. When placed at the bottom of the fallopian tubes, they were present 5 hours later in the upper part of the isthmus, but not in the ampulla. In another experiment, 8 out of 13 ova remaining above a reversed portion of fallopian tube were fertilized by living spermatozoa. D. concluded that the progress of spermatozoa in the fallopian tubes depended on their motility and not on the direction of ciliary movements.—M.G.G.

Perry, J. S. (1954). **Fecundity and embryonic mortality in pigs.**—*J. Embryol. exp. Morph.* **2,** 308-322. **3028**

P. compared the number of corpora lutea, as revealed at slaughter, with the number of piglets in the previous litters of 863 sows. The commonest number of corpora lutea was 20; in gilts in their first pregnancy it averaged 13·6. He estimated that at least 40% of all ovulated ova failed to develop. Most of this loss probably occurred 10–20 days after implantation of the ova.—R.M.

Perry, J. S. & Pomeroy, R. W. (1956). **Abnormalities of the reproductive tract of the sow.**—*J. agric. Sci.* **47,** 238-248. **3029**

The genital organs of 820 sows and 43 gilts, taken between August 1950 and December 1951, were examined. In 365 cases something of the history was known. In 196 of the 733 "empty" sets there were cystic ovaries, and in 86 others, obvious abnormalities. In many sows that had been discarded on account of failure to breed, no abnormality was apparent in the organs.

—F. L. M. Dawson.

Adams, C. E. (1956). **A study of fertilization in the rabbit: the effect of post-coital ligation of the Fallopian tube or uterine horn.**—*J. Endocrin.* **13,** 296-308. [Author's summary modified.] **3030**

In superovulated rabbits a study was made of the effect on fertilization of ligating the fallopian tube or uterine horn near the tubo-uterine junction at specific intervals after mating (30 min.–6 hours). A total of 140 does were used and altogether 2,630 eggs were studied. Observations were made on the does' response to gonadotrophin treatment, the rate of egg development, the occurrence of abnormal eggs, the number of spermatozoa in fertilized eggs, the transfer of fertilized eggs to recipient does and the length of the female genital tract. Rabbit semen was collected by means of an improved type of artificial vagina. It was concluded that, although some spermatozoa may reach the tubo-uterine junction soon after mating, 2–5 hours are required before the number of spermatozoa entering the fallopian tube is sufficiently high to produce maximum fertilization.

Hafez, E. S. E. & Pincus, G. (1956). **Hormonal requirements of implantation in the rabbit.**—*Proc. Soc. exp. Biol., N.Y.* **91,** 531-534. [Authors' summary slightly modified.] **3031**

The role of ovarian hormones in implantation was studied in rabbits ovariectomized after mating and in ovariectomized pseudopregnant rabbits into which fertilized ova were transplanted. There was no evidence of delayed implantation. One to 3 implantations occurred in ovariectomized rabbits injected with 2 or 25 mg. progesterone. The percentage of implantations ranged from 15 to 23

irrespective of dosage or the time at which injection started. Implantation failed to occur when the dose was 0·3 mg. progesterone or 0·1 mg. oestradiol in combination with progesterone. The number of implantations did not increase with the transplantation of ova. This may suggest a quantitative basis for the hormonal requirement at implantation. Hormonal requirements at implantation vary from those needed for subsequent development.

RAYNAUD, A. & RAYNAUD, J. (1956). La production expérimentale de malformations mammaires chez les foetus de souris, par l'action des hormones sexuelles. Première partie. **[Experimental production of mammary malformations in foetuses of mice, by the action of sex hormones. Part I.]**—*Ann. Inst. Pasteur.* **90,** 39-91. [English summary.] **3032**

One hundred and sixty-two female mouse embryos at 12–15 days' development were injected with 40–250 μg., of oestradiol dipropionate; 42 were followed up to parturition and sectioned; over 50 controls were observed. The minimum dose was sufficient to bring about conspicuous malformation in 95%; *e.g.* formation of mammary glands with malpighian components; formation of a cutaneous pouch at the site of a mammary gland, the residue of the gland not always persisting. Mammary sensitivity to oestrogen decreased markedly after the 15th day. The literature reviewed (47 references) covers also the normal histogenesis and the effects of testosterone on the developing foetus.

—F. L. M. DAWSON.

GUZZONATO, G. & PIGATO, E. (1956). Il tasso ormonale nel latte di vaccine gestanti. Il tasso estrogenico nel latte vaccino in rapporto alla gestazione. **[The hormone content of the milk of pregnant cows. II. The oestrogen content of cow's milk in relation to gestation.]** — *Progr. vet., Torino.* **11,** 233-234. **3033**

In the course of further studies on pregnant cows [*V.B.* **26,** 2444] a steady increase in the oestrogen content was observed. This is attributed to increased hormone production by the placenta.—T.E.G.R.

IWANOFF, N. (1956). Die östrogene Wirkung einiger Indone und die Möglichkeit einen proöstrischen Fond im Organismus durch aktive pflanzliche Verbindungen zu schaffen. **[Oestrogenic action of some indones and induction of pro-oestrus with some plant preparations.]**—*Acta vet., hung.* **6,** 55-64. [In German. Russian summary.] **3034**

Analogies of chemical structure exist between the indone derivatives used and true oestrogens. A dosage of 50 mg./kg. body wt. produces every appearance of oestrus in rats. These substances are said to act on the genital organs through the c.n.s. and to be potentiated by adrenal cortical hormone. Various other plant-derived substances, including oleum anisi, produced slight oestrous symptoms.

—F. L. M. DAWSON.

KOCH, W. & BERGER, W. (1954). Erbliche cystische Degeneration der Ovarien in Verbindung mit einem hormonalen Körperbautyp beim Rind. **[Hereditary cystic degeneration of the ovaries in cattle, associated with a characteristic conformation of the body.]**—*Fortpflanzung.* **4,** 114-116. **3035**

The authors examined 119 Spotted Mountain cows. Out of 47 descended from a particular bull, 28 had cystic ovaries after the first or second calving. The masculine conformation of affected cows is demonstrated in 3 photographs.—R.M.

See also abstr. **2838** (epididymitis in rams); **2901** (teratogenesis); **2958** (vitamin E etc. and fertility); **3054** (book, genetics).

ZOOTECHNY

CROFT, P. G. & HUME, C. W. (1956). **Electric stunning of sheep.** — *Vet. Rec.* **68,** 318-321. **3036**

The authors studied the use of a stunning apparatus on 31 sheep. It incorporated two electrodes, one of which was placed on the muzzle, and the other on the skin near the eye. The distance between the electrodes was fixed at 7 inches. Three failures were experienced which probably could have been overcome by better placing of the electrodes or by the use of 150 volts instead of 90 volts (which, in practice, often fell to 70 volts). In these respects an apparatus used in the Netherlands [see *V.B.* **21,** 884] appeared to possess advantages over that studied.—R.M.

VILNER, A. M., GAVRILOVA, T. S. & GUDKIN, A. F. (1955). **[Rearing winter calves in unheated buildings in the Leningrad area.]**—

Sborn. nauch. Trud. Leningr. Inst. Usovershenst. vet. Vrach. **10,** 100-105. [In Russian.] **3037**

Average winter temperature in the Leningrad region ranges from 0° to −10°C. Calves were successfully reared in unheated buildings, provided that there was good nutrition and hygiene, dry litter, and good ventilation. Inside suitable buildings housing an optimum number of calves the temp. ranged from −3° to +9°C. Calves were exercised outside twice daily for periods of 10–15 min. (calves under 1 month old) or 1–1½ hours (over 1 month old). A comparison of calves in unheated and heated (temp. range 5° to 20°C.) buildings revealed slightly better weight gains in the former group. Details of the buildings are not given.—R.M.

See also abst. **2951** (hatching and brooding in relation to transmission of visceral lymphomatosis).

TECHNIQUE AND APPARATUS

Ulbrich, F. (1955). Darstellung lebender selektiv vital gefärbter Bakterien in der Deckglaskultur. **[Demonstration of living bacteria, vitally stained, in cover-glass culture.]** —*Zbl. Bkt. I.* (*Orig.*) **163,** 546-548. **3038**

U. described some applications of the cover-glass culture method described by Fortner (1929). Observation of single colonies of *Salmonella gallinarum* on maltose-fuchsin agar revealed that only some of the bacteria fermented maltose, and the biochemical properties of this species were identical with those of *S. pullorum*.—R.M.

Jastrzębski, T. (1956). Badania nad zakażaniem sie zawratości strzykawki przy zmianie igły. **[Research on the prevention of contamination of contents of syringes, when changing needles.]**—*Méd. vét., Varsovie.* **12,** 197-200. [In Polish. English and Russian summaries.] **3039**

During the removal of a contaminated needle the bacteria present are sucked back into the nozzle of the syringe. J. recommends, in certain cases, *e.g.* inoculations of stud stallions in which equine infectious anaemia is suspected, the use of a separate needle and syringe for each animal.—M. Gitter.

Davies, D. A. L. & Baugh, V. S. G. (1956). **Preservation of animals and plants by drying from the frozen state.**—*Nature, Lond.* **177,** 657-658. **3040**

Small animals, including mammals, can be satisfactorily preserved by freeze-drying. The natural shape and size of the specimens is maintained and the colours are least impaired by this method. The transparency of the integument is lost, however, and animals whose surface is covered with mucus become opaque and white.—M.G.G.

See also absts. **2783** (selective medium for E. rhusiopathiae); **2822** (freeze-drying V. fetus and V. suis cultures); **2841** (electron microscopy of T. equiperdum); **2914** (separation of Q-fever antigen by ultrasonic vibration).

MISCELLANEOUS

Edrisinghe, E. F. (1955). **The pre-race dope test.**—*Ceylon. J. vet. Sci.* **12,** No. 3. pp. 19-20. **3041**

Samples of sweat or saliva from each horse were examined by a rapid test for the presence of alkaloids, half an hour before the start of a race. By this means E. claimed to be able to detect horses which had been "doped". No details of the test are given. —R.M.

Price, I. N. O. (1956). **Transmission of blood and serum samples.**—*Bull. World Hlth Org.* **14,** 317-326. [French summary.] **3042**

P. discussed haemolysis and other changes affecting serological tests which occur in blood samples during their transmission from patient to laboratory or from one country to another. With a view to preventing such damage, he described the technique of collecting blood, the size and shape of suitable containers, the addition of preservatives, and the effect of temperature.—R.M.

REPORTS

Great Britain. (1955). **Royal Veterinary College Annual Report 1st October, 1954 to 30th September, 1955.** pp. 37. London: The Royal Veterinary College. **3043**

Seventy new students were admitted and four others were admitted for Final M.R.C.V.S. Fourteen graduate students are reading for the Ph.D. degree. Of the total of

337 students 169 passed examinations of the R.C.V.S. Of the 195 entered, 64 of these qualified for M.R.C.V.S. and seven for B.Sc. (Veterinary Science).

For the B.V.M. degree course 64 of 81 passed Part I and 22 of 44 Part II of the Pre-Clinical Examination.

Details are given of the work done and in progress in each of the Departments during the year. A list of published papers by members of the staff is given.

At the Beaumont Animal Hospital 9,315 cases were treated and 537 cases were seen in consultation.—J. A. GRIFFITHS.

TANGANYIKA. (1956). **Annual Report of the Veterinary Department 1954. Vol. II. Research and Statistics.** [BARNARD, W. G.] pp. 52. Dar es Salaam: Government Printer. Shs. 3. **3044**

Tuberculin tests of 979 cattle showed 7·15% positive and in goats 3·8%. Of the cattle 0·3% were doubtful reactors. Of 127 sheep, 15 pigs, 14 donkeys and 4 horses, none were reactors.

At Mpwapwa *Staphylococcus albus* is the most common bacteriological pathogen of cattle, sheep and goats, causing infection of superficial lymph nodes and also mastitis. An attempt has been made to vaccinate all young stock with a formolized whole culture.

Research on the physiology of the zebu hump is being carried on. Crossbreeding of Indian zebu with African Shorthorn zebu stock causes a large reduction of the normal fat content of the hump in the hybrid.

An undiagnosed disease of cattle in the Mpwapwa valley mentioned in the 1953 Annual Report [*V.B.* **25,** 2627] appears to be due to *Senecio* poisoning, but further investiation is necessary.

In four cases of THEILERIOSIS (ATYPICAL EAST COAST FEVER) in African Shorthorn zebus and a grade cow, Koch's bodies were demonstrable in blood, spleen and lymph node smears; erythrocytic forms were rarely seen. High temperatures and enlargement of superficial lymph nodes were noted. Three cases had pneumonic symptoms and all died showing oedema of the lungs, hydrothorax and inflammation of the abomasum, and nephritis. The condition resembles *Theileria* infections reported from Rhodesia and Nyasaland as well as other parts of Africa. Other research work done has been dealt with elsewhere in published papers [*V.B.* **24,** 779, 3331; **25,** 343, 318 & 2554].—J. A. GRIFFITHS.

BOOK REVIEWS

WAGENER, K. [Professor, Direktor des Hygienischen Instituts der Tierärztl. Hochschule, Hannover.] (1956). Kursus der veterinärmedizinischen Mikrobiologie. **[A student's manual of practical veterinary microbiology.]** pp.161. Berlin (and Hamburg): Paul Parey. DM 26.80. **3045**

The fifth enlarged and revised edition of this work which is intended for students for use during practical instruction in veterinary microbiology, consists of two parts the general section, embodying among others chapters on general microscopy, preparation of stains, methods of staining, culture methods and media, nutritional requirements of bacteria, *post mortem* methods for laboratory animals, and various serological techniques.

The more important micro-organisms of veterinary and medical interest are listed in the special section. There are tables giving their international names and synonyms, morphological characteristics and pathological importance. The manual also contains protocol forms for use by students during practical instruction. Recipes for the preparation of various standard laboratory stains, solutions and media are listed at the end of the manual followed by short biographical notes on some authors mentioned in the text. There are 44 illustrations, many of them in colour and there is an adequate subject index. Paper, print and binding are of very good quality.—E.G.

BURNET, F. M. [Director, The Walter and Eliza Hall Institute of Medical Research, Mebourne, Australia.] (1955). **Principles of animal virology.** pp. x + 486. New York: Academic Press Inc. $10.00. **3046**

In this important book Burnet brings together and discusses what is known about the virus diseases of the higher animals and man and does so in his characteristically clear and provocative style. There are twenty-one chapters, all of importance and interest, but those which the present reviewer found especially stimulating deal with ecology, variation, latent infections, and the multiplication and liberation of viruses.

The book is essential not only to the purely laboratory worker but to public health administrators both medical and veterinary.

Burnet is of course pre-eminently a medical man but he refers to most of the important virus diseases of veterinary interest.

A few errors have been noticed in some of the tables and these are mentioned for the sake of historical accuracy. For example in Table II, which gives the dates on which certain important virus diseases of domestic animals were first successfully transferred to experimental animals, credit for the transfer of rinderpest virus to the rabbit is given to Baker (1946); actually this had been done many years earlier, first by J. T. Edwards at Mukteswar and secondly by Nakamura in Japan.

Table XIV lists the attenuated vaccines currently in use against veterinary diseases. For rinderpest the only attenuated virus listed is the chick embryo strain; actually this strain is not and never has been "currently in use" on any considerable scale. The viruses which are currently and widely used are the goat-adapted virus of Edwards and the rabbit-adapted virus of Nakamura. Again credit for the adoption of the canine distemper virus to the chick embryo is given to Cabasso & Cox (1949) without mention of Haig (1948); similarly the adaptation of the Newcastle disease virus to the chick embryo is attributed to Markham *et al.* (1951) without mention of Iyer & Dobson (1940).

Table XVII, dealing with transfer of virus from one host species to another, omits to list the rabbit as susceptible to swine fever on inoculation. It is not correct to give the goat as a species in which rinderpest produces trivial symptoms only. In some types of goats rinderpest causes marked symptoms and death.

The role of ticks in transmission of virus disease is dealt with rather briefly and without mention of Nairobi sheep disease which is of historical importance as being the first virus disease of animals which was shown to be tick transmitted.

These minor errors probably arise from lack of acquaintance with the more purely veterinary literature and do not detract from the great value of this book.

CARPENTER, P. L. [Professor of Bacteriology, University of Rhode Island.] (1956). **Immunology and serology.** pp. viii + 351. Philadelphia (& London): W. B. Saunders Co. 45s. 6d. **3047**

The author's purpose is to provide a book for use at the "early graduate" stage. The book is simply written and covers much ground. There is an admirable account of the conflicting theories of antigen-antibody reaction. It is reasonably up-to-date; it includes the conglutination reaction, for example, but devotes little space to the relation of cortisone to immune reactions. The chemical aspects of immunity are not over-emphasized, though the biological aspects of immunity and resistance are rather briefly treated, the bibliography of Chapter I containing only five references.

The main difficulty, in preparing a simple text-book of this kind, is to avoid perpetuating old but untenable orthodoxies, such as that placental permeability to antibodies is related to the numbers of layers constituting the placenta. There is need for a book which, abandoning the customary standpoints, might critically examine immunity as a comparative study of the biological and biochemical consequences of the host-parasite relationship. This book attempts no such task but accepts both the virtues and vices of the medical school approach.

The statements that Q fever antigen administered intravenously produces no secondary immune response in rabbits, and that few people can distinguish between adult rabbits and hares, would both appear to be erroneous.

This book joins an honourable library of expositions of immunity alongside Boyd, Raffel and Zinnsser.—G. FULTON ROBERTS.

LAPAGE, G. [External Examiner in Veterinary Parasitology, University of Liverpool.] (1956). **Veterinary parasitology.** pp. xvi + 964. Edinburgh (& London): Oliver & Boyd. 63s. **3048**

This scholarly work on veterinary parasitology has been required for many years.

The subject has been approached with a marked zoological bias, and following the two introductory chapters on parasites and their effects on the hosts, the parasitic worms, flukes, arthropods and protozoa have been described in their respective Phyla and Orders with notes on pathogenicity and control at the end of each relevant section. There is also interesting information on closely allied non-parasitic species. Although it is stated that the book is about parasitic diseases of British farm animals, there is so much information on

parasitic diseases in other countries as to make it a comprehensive text-book.

The detailed descriptions of morphology and life cycles of parasites fail to give sufficient indication of their relative importance to particular hosts, a knowledge of which is indispensable to the clinician. The descriptions of the pathology are inclined to be too general, and the author insufficiently critical in his inclusion of material, *e.g.* there is as yet insufficient evidence of brain infestation of the pig by larvae of *Ascaris lumbricoides* (page 166) or of the importance of larvae or worms as a cause of nervous symptoms (page 167). On page 175 the lesions described in the internal organs of poultry following a heavy *Ascaridia galli* infection are those rarely encountered in the field.

There are few serious faults, but certain errors need correction. For example the synonyms given for *Lyperosia irritans* (Stomoxydinae) on page 474, as *Hydrotaea irritans* and *Siphona irritans*. *H. irritans* (Ariciinae) is another fly altogether, and *S. irritans* is one of mistaken identity [*cf.* Van Emden, Roy. Ent. Soc. handbook 10 (4A) 67]. Drawings that have been taken from earlier works have perpetuated their mistakes, *e.g.* the drawing of *Lucilia caesar* (page 498) displays three pairs of post sutural acrostichal bristles instead of the two belonging to this species.

But the bibliography is the weakest section. Several references have been omitted and others are erroneous, *e.g.* the reference on page 151 made to the over-wintering of *Dictyocaulus* larvae on pasture described as appearing in a paper by Taylor in *Agriculture* 1952, actually appears in another paper and journal, and the reference on pages 276–8 made to another important paper by the same author (1951a) on fascioliasis has been omitted from the bibliography. Similarly the references to the work of Tyzzer on *Eimeria meleagridis* and *E. meleagrimitis* (page 851) need correction; no reference is given in the list to the paper of 1927, and that of 1929 in *Amer. J. Hyg.* should refer to page 269 and not page 1. There are also too many references to personal communications, which means that future workers cannot easily obtain the evidence on which the statements are made.

In a lesser work such mistakes could be overlooked, but in a work which is destined to become the standard volume of reference for research workers and students, it is necessary that they be indicated in order that they may be corrected in future editions.

—W. E. Parish.

Fernald, H. T. [Late Professor of Entomology, University of Massachusetts.] & Shepard, H. H. [Entomologist, U.S. Department of Agriculture.] (1955). **Applied entomology. An introductory textbook of insects in their relations to man.** pp. xi + 385 London (New York, Toronto): McGraw-Hill Book Company, Inc. 5th Edit. 52s. 6d. **3049**

A very general text-book on applied entomology, giving brief descriptions of a large number of insects that are pests to crops, trees or livestock and man. There are introductory chapters on the physiology of insects and their control.

The matter is confined to the pests which occur in the U.S.A., and though the work would be interesting to the general entomologist there is little information of veterinary importance.—W. E. Parish.

Martini, I. (1956). Medicina bovina, le malattie dei bovini, con speciale riguardo alla diagnosi, alla prognosi, alla terapia. [**Diseases of cattle with special reference to diagnosis, prognosis and treatment.**] pp. 595. Milan: Unione Tipografica. Lire 4000. **3050**

This book is designed to appeal to the new graduate in veterinary science and is aimed at turning his academic training to practical use. In it, he is told how to detect and interpret the signs of ill-health in the animal body and, having made his diagnosis, how to treat the patient.

Infectious diseases are not dealt with as clinical entities, but are mentioned in passing, as they affect the various organs.

There is a large section on the recognition and treatment of organic and inorganic poisoning.

The book will prove very useful to those newly confronted with cattle practice, and might even provide fresh ideas for more experienced practitioners who are too busy to keep up to date with the current literature.

—I. W. Jennings.

Meyer, K. F. (1955). **The zoonoses in their relation to rural health.** pp. 49. Berkeley: University of California Press. $1.00. **3051**

A brief account of the importance and incidence (with statistics, when available) of

diseases transmissible from animals to man, based on a paper read at the Seventh General Assembly of the World Health Organization in 1954. The diseases are classified into 12 of major importance (*e.g.* anthrax, brucellosis, rabies) and 9 of localized importance (*e.g.* glanders, Rift Valley fever, trypanosomiasis). There are charts and diagrams which depict the geographical distribution and the cycle of infection of each disease.

The author refers to the need for making the more important diseases notifiable, and to the need for better diagnostic facilities. He suggests a form of local and national organization for the reporting and control of these diseases, placing emphasis on the importance and training of the public health veterinarian.

—R.M.

CAZAL, P. [Professeur à la Faculté de Médecine de Montpellier.] (1955). Histopathologie du foie. Le diagnostic des affections hépatiques. Etudes iconographiques. **[Histopathology of the liver. Diagnosis of hepatic affections.]** pp. 209. Paris: Masson et Cie. Fr.4800. **3052**

This is a book which will perhaps appeal to the postgraduate student rather than to either the specialist or the graduate student. Its 213 monochrome photomicrographs are of excellent quality and its 24 plates in colour are scarcely inferior; the text, if comparatively brief, is very pertinent; numerous references are given and it is handsomely printed on art paper.

The plates and their descriptions are grouped on an aetiological not a morphological basis—a classification which may occasion some debate. There is a brief chapter on histopathological techniques, most of which describes a method of taking biopsy samples. The book is concerned only with the human subject.—L. M. MARKSON.

BOURDELLE, E., FRADE, E., BOURLIÈRE, F., LAVOCAT, R., DEKEYSER, P. -L., PETIT, J. DOLLFUS, R. -P., PIVETEAU, J., FRECHKOP, S., VAUFREY, R., GRASSÉ, P. -P., VALLOIS, H., DE BALSAC, H. H. & VIRET, J. (1955). Traité de zoologie, anatomie, systématique. biologie. Tome XVII. Fascicules I & II. Mammifères: les ordres: anatomie, éthologie, systématique. **[Treatise of zoology. Vol. XVII. Parts I & II Mammals.]** pp. 1170 & 1173-2300. Paris: Vigot Frères. Fr. 11000 each. **3053**

These two books, which constitute the two parts of the 17th volume of this large work, are devoted to an account of the Mammalian Orders. They were preceded by the publication of volume XII—an account of the comparative anatomy, embryology and comparative biochemistry of the Vertebrate Phylum [*V.B.* **26,** 1073].

The work is inevitably based on systematic anatomy, but behaviour, geographical distribution, palaeontology, evolution and special physiological features all receive due attention. Thus, the social habits of rodents, primates and pinnipedes, nocturnal flight and orientation by Chiroptera, adaptations to marine life and the physiology of diving in Cetacea are among the points which receive special treatment.

The great value of these two volumes, as with the others in the series, is that they provide a unique comprehensive source of reference. The arrangement of material facilitates access to information and, in fact, gaps in our present knowledge are often clearly revealed. In this way research is likely to be stimulated.

The high standard of reproduction of the previous volumes has been fully maintained. The numerous line drawings are clearly reproduced and excellent photographs are included.—L. P. JOYNER.

HADORN, E. [Professor der Zoologie und Vergleichenden Anatomie an der Universität Zürich.] (1955). Letalfaktoren in ihrer Bedeutung für Erbpathologie und Genphysiologie der Entwicklung. **[Significance of lethal factors in hereditary pathology and gene physiology of development.]**—pp. 338 Stuttgart: Georg Thieme Verlag. DM 39. **3054**

This is a work of genuine scholarship, and it is to be hoped that an English translation will in due course appear. The list of sources consulted occupies twenty-four pages of small print; three quarters of the references are to papers in English. Much of the work of necessity concerns mouse and *Drosophila* genetics, but the author's keen interest extends to all the domestic animals and he has here contributed to the scanty knowledge on the subject by analysis of the already published work followed by synthesis from it. Nevertheless he omits reference to a number of papers concerning phenomena in genetics, including the recent work from Great Britain and the U.S.A. familiar to all veterinarians practically concerned with cattle breeding. Considerable space is allocated to the development of the factors by mutation, with the relevant chromosomal background, and there

are interesting chapters on penetrance, the biochemical aspect, and cell autonomy—transplantation and implantation.

—F. L. M. DAWSON.

NEUMANN-KLEINPAUL, K. [Direktor des Instituts für gerichtliche Tiermedizin, Berlin.] & DOBBERSTEIN, J. [Direktor des Instituts für Veterinär-Pathologie, Berlin.] (1955). Lehrbuch der Gerichtlichen Tierheilkunde. **[Fröhner's text-book of forensic veterinary medicine.]**—pp. xii + 354 Berlin: Paul Parey. 11th Edit. DM 31.60. **3055**

The eleventh revised edition of this textbook, which was first published fifty years ago, contains sections on Roman law and German and foreign legislation in respect of warranty in various species of domestic animals, liability of the veterinary surgeon, blacksmith and owner, fraud, and protection of animals. There is an appendix on the forensic methods of differentiation of species and sex of animals from incomplete carcasses and parts of the body. The subject index is adequate and the book is very well produced.—E.G.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

BÖHNING, F. (1956). Beziehungen zwischen Menschen- und Rindertuberkulose. **[Relationship between human and bovine tuberculosis.]** pp. 48. Stuttgart: Georg Thieme Verlog. DM 7.20.

CAMERON, T. W. M. (1956). **Parasites and parasitism.** pp. xiii+322. London: Methuen & Co. Ltd. (New York: John Wiley & Sons, Inc.) 35s.

COLIN, E. C. (1956). **Elements of genetics. Mendel's laws of heredity with special application to man.** pp. xv+498. London (New York, Toronto): McGraw-Hill Book Company, Inc. 3rd. Edit. 43s.

DAVIS, J. G. (1955). **A dictionary of dairying.** pp. xxviii+1132. London: Leonard Hill Ltd. 2nd Edit. Revised and enlarged. 65s.

FERRANDO, R. (1956). Précis d'alimentation du poulet. **[The nutrition of the fowl.]** pp. 96. Paris: Vigot-Frères.

GENNET, L. (1955). Cancer des bêtes, cancer des hommes. **[Cancer in man and animals.]** pp. 136. Paris: Vigot-Frères.

MAYNARD, L. A. & LOOSLI, J. K. (1956). **Animal nutrition.** pp. vii+484. London (New York, Toronto): McGraw-Hill Book Company, Inc. 4th Edit. 56s. 6d.

UNDERWOOD, E. J. (1956). **Trace elements in human and animal nutrition.** pp. 430. New York (& London): Academic Press Inc. $9.50.

—. (1956). **Advances in biological and medical physics.** Vol. IV. [Edited by LAWRENCE, J. H. & TOBIAS, C. A.] pp. x+356. New York: Academic Press Inc. $6.80.

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   R. Eisenstein & J. R. M. Innes, *Pathology Branch, Army Chemical Centre, Maryland, U.S.A.*

2. REVIEW ON PIGLET ANAEMIA
   J. Seamer, *School of Veterinary Medicine, University of Cambridge*

3. RINDERPEST: CONTROL BY MODIFIED VIRUS VACCINE (Part 1).
   J. G. Brotherston, *A.R.D.A., Moredun Institute, Edinburgh.*

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